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VOLUME 17 NUMBER 1

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Archives of Dermatology and Syphilology

VOLUME 17 JANUARY, 1928 NUMBER 1

DERMO-EPIDERMIC INTERCHANGES

AS CONTROLLED BY THE STUDY OF MELANIC PIGMENT, THE ESTERS OF CHOLESTEROL (XANTHOMA) AND HEMOSIDERIN (SCHAMBERG'S DISEASE) *

L. M. PAUTRIER

WITH THE COLLABORATION OF G. LÉVY AND A. DISS

STRASBOURG, FRANCE

The nature of the relation connection between the epidermis and the corium is a problem that has confronted every dermatologist who has studied the normal histology of the skin.

Two main facts seem to have been noted and to have helped dermatologists to build up the classic conception. The first fact is the idea that the epidermis and the derma are of different origin, one being formed from the ectoderm, the other from the mesoderm. The dogma of the specificity of the two layers and their products, which has been unshaken for a long time, has brought observers to believe in a complete morphologic separation of the two tissues that their topography and function bring together to form a single organism, complex perhaps, but indivisible.

The second fact is the absence of blood vessels in the epidermis. As soon as it was proved that no blood vessels were in the epidermis, it was natural to believe that the epidermis was dependent on the derma for nourishment, particularly on the papillary layer, in which are located the vessels which carry the nutriment necessary for the upkeep of cellular life.

Nearly every dermatologist who has studied the histology of the skin believes that the epidermis is nourished directly by the plasma of the blood issuing from the capillaries of the papillary layer and oozing through the basal layer. Textbooks on histology and dermatology do not even allude to any other form of nutrition. The plasma, containing the various materials necessary for the maintenance of the epidermis and for the multiplication and unceasing evolution of its cells, reaches the epidermis at the height of the basal layer; higher up in the stratum filamentosum, it circulates through the intercellular spaces, which are crossed by the connecting fibrils of the mucous layer cells and in which some migratory cells are always found.

* Read at the Fiftieth Annual Meeting of the American Dermatological Association, May 12-14, 1927.

While we do not deny the importance of the circulation of the plasma, we raise the following query: Does a special trophic system connecting the epithelium with the vital fluids exist in addition to the circulation of the plasma? If this system does exist, what is its local importance and its general significance? The research work of our colleague, Professor Borrel, on invertebrates and inferior vertebrates, especially alytes, led us to ask this question and brought him to admit the existence of a cellular layer, a kind of immense syncytium extending through all the embryonic layers by means of cells united in a common function, and ending in a layer in the epidermis, which was at once nutritive and pigmentary.

According to Masson who has done research work on the Langerhans cells, these peculiarly shaped ramous cells have been known for a long time. They were described in 1868 by Langerhans, who believed them to be nerve cells placed at the nodular points of the intra-epidermic plexus, as staining with gold chloride revealed. Ever since, there has been a misconception of the true nature of the cells. The theory that they are nerve cells was discarded. Then Ranvier classified them as leukocytes. This was followed by Ribbert's theory that they were chromatophores, and by Ehrmann's and Borrel's theory that they were connective tissue cells of a special kind. The recent work of Bruno Bloch has made it likely that the Langerhans cells are derived from the epidermis since he has shown that they can produce pigment, a faculty belonging exclusively to the cells derived from the ectoderm. Therefore, the Langerhans cells alone may be called melanoblasts, the dermic pigment cells being only chromatophores, mere carriers of pigment that they are unable to manufacture (except in the case of mongolian spots).

Masson showed that the contents of these cells are in keeping with the contents of the subjacent connective tissue cells, and that, on the other hand, the contents of the epidermic cells are also in keeping with their subjacent tissue cells, so that it would seem that they play the part of intermediate, amboceptor cells between the epidermis and the corium.

Masson believed that certain substances are carried from the deeper to the upper strata of the skin, not by mere diffusion through the intercellular spaces, but by an intercellular and an intracellular circulation, the Langerhans cell being the last factor in the distributing relay.

Following Borrel and Masson, collaborators and I have undertaken to prove the existence of this intercellular dermo-epidermic circulation by using three reagents: (1) the silver reduction of melanin, by Masson's perfect technic, collated with Bruno Bloch's dopa reaction; (2) the staining of the fats and esters of cholesterol in xanthoma with scarlet R, and (3) the staining of the ferric pigment (hemosiderin) in Schamberg's diseases with potassium ferrocyanide and muriatic acid.

DERMO-EPIDERMIC INTERCHANGES AND MELANIC PIGMENT

If the melanic pigment in the white race is studied by examining a section of skin of a person who has not received any special treatment, it is rather difficult to detect this pigment, although in sections obtained from areas of physiologically hyperpigmented skin (genitals, anal region, areola mammae) one can see small yellow, brownish or almost colorless granules. These granules of melanin are found chiefly in the cells of the basal layer, but are also found in the cells of the rete malpighii and in some star-shaped connective tissue cells, most of which are found in the papillary layer of the corium.

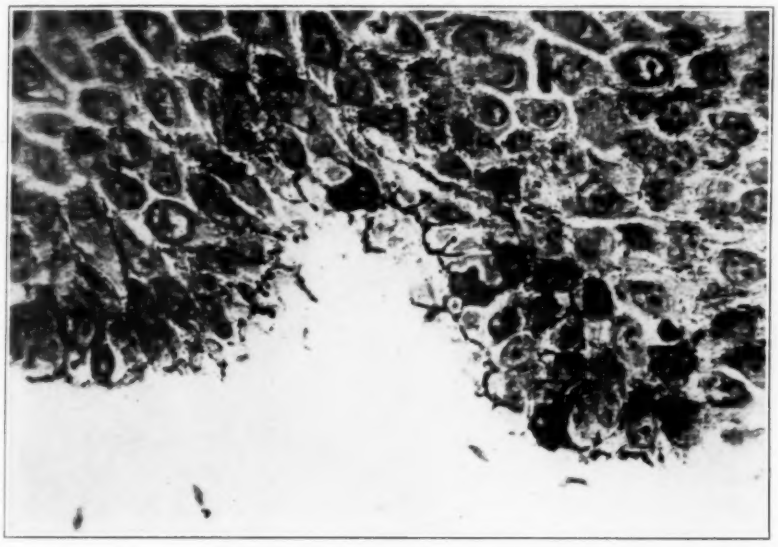

Fig. 1.—Photomicrograph showing a section of slightly pigmented epidermis with a Langerhans cell sending out dendritic processes between the malpighian cells nearby. The section is taken from the inner side of a thigh. Stained by Masson's silver method; × 700.

By the use of the silver-reducing power of melanin, Masson has given an unfailing technic by which to transform the granules of melanic pigment into easily perceived opaque and black granules. (Technic: Fixation without chromium, paraffin sections, two hours in 10 per cent Fontana solution, rinsing with distilled water; fixation with a 5 per cent solution of sodium thiosulphate). What is seen in a section of skin colored by Masson's method? The pigment is found chiefly in the basal cells, but a linear row of melanic granules can be seen here and there, either between the cells of the rete malpighii or extending under the basal layer. In particularly good sections, these rows are protoplasmic tendrils dotted with melanic granules, originating in

peculiar cells with angular bodies situated in the stratum germinativum. These cells, which are nothing but Langerhans cells, send out numerous processes from their angles; some of these spread out and insinuate themselves between the malpighian cells; others extend along the basal layer for some distance, and then turn and ascend vertically toward the surface. Every Langerhans cell thus distributes pigment to a group of malpighian cells.

Figure 1 shows a slightly pigmented epidermis, and in the center, on the apex of a papilla, can be seen a Langerhans cell sending out dendritic

Fig. 2.—Photomicrograph showing Langerhans cells in an isolated state. The section is taken from a pigmentary macule in Recklinghausen's disease. Dopa Reaction of Bruno Bloch; × 700.

processes between the malpighian cells nearby; these dendritic processes follow a straight line or begin by running along the basal layer. In order to learn more about the Langerhans cells they should be examined in an isolated state as in a section of hyperpigmented skin.

In figure 2, the artificial prepigment (dopa) has undergone elective oxidation in the Langerhans cells. These are stained an opaque black and their dendritic processes are black or dark brown. If the Langerhans cells appear far more voluminous, it is due to the fact that no shrinkage has taken place since the section was a frozen one.

Study of the pigmentary function, therefore, seems to show that the Langerhans cell can draw the chromogenic substance from the derma and transform it into pigment, because of its specific oxidase (B. Bloch), and that it can also yield melanin to the malpighian cells surrounded by its processes. On the other hand it can pass on its pigment to the subjacent dermic cells. These cells do not contain oxidase (B. Bloch), and are therefore unable to produce pigment; they are merely "tattooed cells." This is illustrated in figure 3, which shows a section of hyperpigmented skin. In the center of the section there is a papilla and a capillary, the endothelial cells (E) of which hold compact melanin,

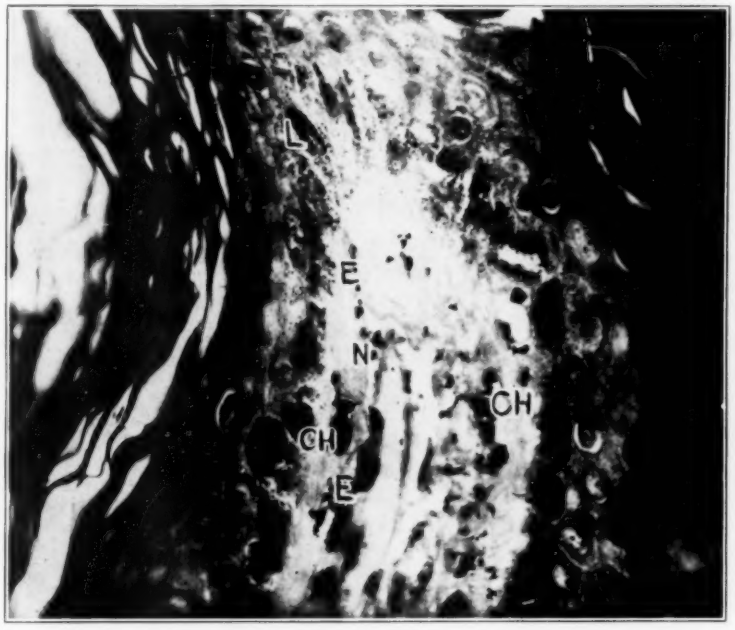

Fig. 3.—Photomicrograph showing a section of hyperpigmented skin taken from a patient with acanthosis nigricans. *E* indicates endothelial cells; *CH*, chromatophores; *L*, Langerhans cell and *N*, connective tissue cell. Silver staining method; × 700.

brought to them by the chromatophores (CH) that are in protoplasmic connection with the Langerhans cells. The protoplasmic fibril is dotted with melanin granules, some of which belong to a Langerhans cell (*L*), which is seen in the upper left hand corner and some of which belong to a connective tissue cell (*N*) the nucleus of which is faintly visible, as it is partly hidden by the melanin heaped up in the protoplasmic body.

The photomicrograph, of course, can give but an incomplete idea of the numerous connections existing between the endothelial cells, the Langerhans cells and the connective tissue cells. One must use the

micrometer screw and examine serial cuts to get a more accurate idea of the protoplasmic connecting processes that are almost always contained in three dimensions and thereby are not fully shown by the photomicrograph which practically covers but two.

A Langerhans cell with ramifications is shown on the left in figure 4 In the middle and on the left side, various connective tissue cells are seen which, through protoplasmic tendrils, come into contact with the dermic processes of the Langerhans cells.

We believe that we have shown by the foregoing evidence that the Langerhans cells, interposed between the epidermis and the derma, are

Fig. 4.—Photomicrograph showing Langerhans cell with ramifications; × 700.

the seat of two currents of pigmentary substances, one of which runs from the derma toward the epidermis (chromogenous), and the other, from the epidermis toward and into the derma (pigment produced by the Langerhans cells and distributed to the dermic cells, which they color).

DERMO-EPIDERMIC INTERCHANGES AND CIRCULATION OF THE FATS AND ESTERS OF CHOLESTEROL IN XANTHOMA

The pigmentary layer, as described by Borrel in invertebrates and in the lower vertebrates, up to the present had not been experimentally demonstrated in man, and could therefore be considered a physiologic derivative yet to be demonstrated.

Fig. 5.—Section of the skin taken from a person with cutaneous xanthoma tuberosum showing the dermo-epidermic exchanges. Several fatty droplets appear in the endothelium of the central capillary. Note the transportation of the fat into the perithelial cells. The fatty granules always are strictly intracellular and the transportation goes on from cell to cell. Hemalum-Scharlach; × 800.

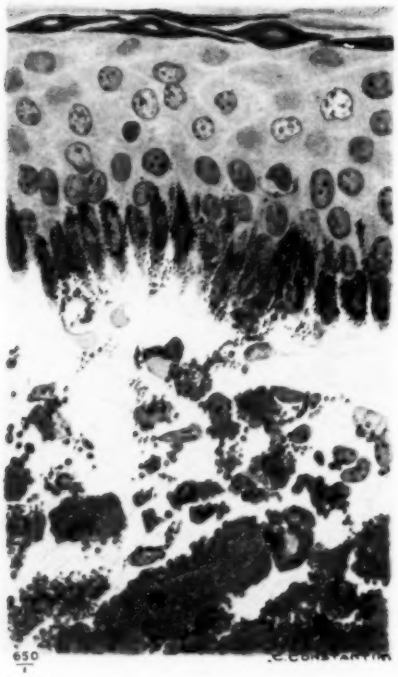

Fig. 6.—Section of skin taken at the same biopsy. This figure shows a Langerhans cell directly drawing up through a process—easily known by the melanin granules penetrating into it—in a xanthomatous cell of the papillary layer of the corium the fat with which it loads itself. Note the processes of the other Langerhans cells that hold melanin granules and fatty droplets at the same time. Silver staining of the melanin by Masson's technic. Hemalum Scharlach; × 650.

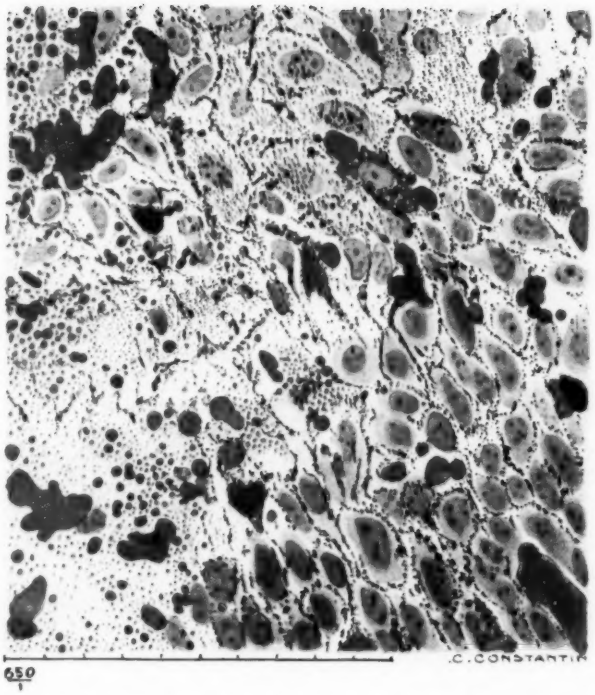

Fig. 7.—Tangential section of the skin passing in part through the basal layer showing dermo-epidermic exchanges. The comparison of figures 5, 6 and 7 plainly shows the existence of dermo-epidermic protoplasmic connections; it is the Langerhans cell with its processes that links together the cells of the two layers. Figure 5 shows that this dermo-epidermic system is connected with the endothelium of the vessels—and through that with the blood plasma—by means of the connection tissue cells and the perithelial cells. The figures plainly establish the anatomic reality of an endothelio-Langerhansian cellular network through which an important circulation of materials takes place—in our case the transportation of neutral fats and esters of cholesterin drawn from the blood-plasma.

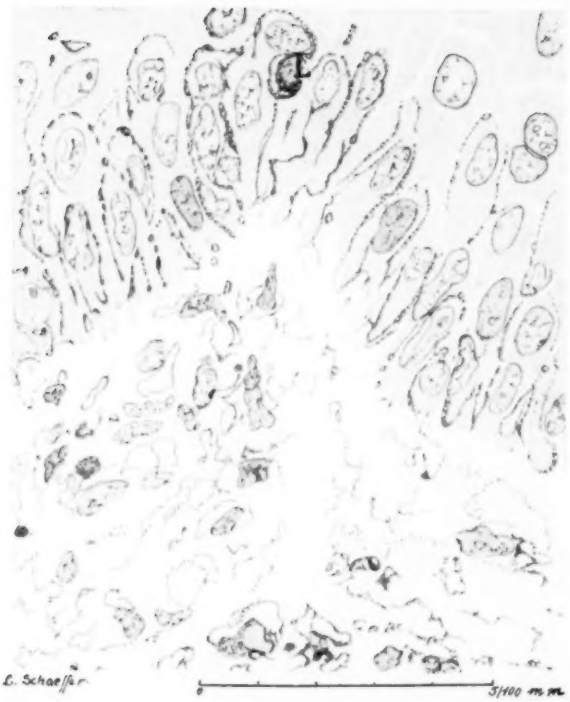

Fig. 8.—Section of skin taken from a person with Schamberg's disease showing the dermo-epidermic exchanges and the dermic infiltrate situated round the vessels, constituted by histiocytes loaded with very minute granules stained in azure blue by potassium ferrocyanide in hydrochloric medium, proved thus to be ferric pigment (hemosiderin). In the basal layer almost every cell is separated from the others by fine processes, also loaded with ferric pigment, and belonging to Langerhans cells. At *L* is seen the nucleus of Langerhans cell, contrasted with the basal cells by its condensed chromatin. Cut stained with Bresilline.

It is true that in a case of xanthoma Masson had seen the Langerhans cells load themselves with esters of cholesterol and fat which they drained from the cells of the papillary layer. He had therefore admitted the existence of a circulatory and trophic network interposed between the blood and the epithelium, but convincing proof of the anatomic existence of this network had not been found. With the help of my assistant, G. Lévy, I have been able to prove this through the study of three personal cases of xanthoma which occurred in the same family.

The three patients had xanthoma tuberosum with xanthomatous infiltration of tendon sheaths and juxta-articular regions, as well as a marked hyperlipocholesterinemia: 6.668 Gm. per thousand cubic centimeters, 7.808 Gm. per thousand cubic centimeters and 7.865 Gm. per thousand cubic centimeters, while the estimation of the fatty acids gave respectively 9.60 Gm. per thousand cubic centimeters, 9.111 Gm. per thousand cubic centimeters and 8.47 Gm. per thousand cubic centimeters.

The three cases were particularly illustrative, as the scarlet R stain enabled us to show every where the presence of fats containing the esters of cholesterol. The xanthomatous tumors were built up by xanthelasmic cells often extending to the epidermis. Even with a lens of low magnification, one was struck by the constant perivascular disposition of the xanthomatous masses. The xanthomatous cells formed perivascular coats around the small and medium sized vessels, coalescing here and there into large xanthomatous masses. In frozen sections stained with scarlet R, all the cells were seen to contain lipoid staining substances to such a degree that the structure of their protoplasmic body and their nuclei were hidden by it. Examination under polarized light showed that a considerable part of these substances was anisotropic. The scarlet R stain, moreover, revealed the following most important peculiarities:

Small definite fatty drops existed in the protoplasm of various vascular endothelia. Analogous droplets existed in some cells of the epithelium covering the tumor.

The fat was intracellular.

We have already pointed out that the xanthomatous cells sometimes came into direct contact with the basal layer. Here and there a Langerhans cell was seen drawing through its processes fat from a xanthomatous cell. This fat is absorbed and also distributed to the malpighian cells with which it was connected by tendrils. The fats electively stained by the scarlet R are always strictly intracellular and never scattered in the connective tissue. It is known that the blood contains abnormal quantities of fat and cholesterol. Lipoid, easy to stain with scarlet R, is present in the endothelial cells of the vessels, in the cells of the walls of the vessels, in the so-called connective tissue cells proper, in the

Langerhans cells and even in some cells of the epithelium lining the tumor, and in these are found the characteristic small drops of fat.

By experimental injection of fat in our cases of xanthoma, we demonstrated the existence of a cellular network which, through the medium of the connective tissue cells, connects the vascular endothelium with the Langerhans cells and, through these, with the epithelial cells. Not a single link is missing in the endothelio Langerhans chain. Thus, to the best of our belief, the anatomic continuity of the trophopigmentary network in man has been proved in its entirety for the first time. This network, which has been considered a physiologic derivative, becomes a fact, and our aim must be to prove its existence under normal physiologic conditions.

DERMO-EPIDERMIC INTERCHANGES AND HEMOSIDERIN IN SCHAMBERG'S DISEASE

Every dermatologist is familiar with the disease first described by Schamberg as progressive pigmentary disease, which is characterized by brown spots on the extremities; these spots slowly grow larger, and they are preceded by hemorrhage-like red spots (cayenne pepper).

We had the opportunity last year to study a typical case of this disease.[1]

The case was that of a boy, aged 10, who had lesions on both legs which appeared a few days after birth and which were similar to the lesions which he presented when we saw him. The lesions had spread progressively on to the thighs and upper extremities. They corresponded strikingly to Schamberg's description. They were small bright red spots varying in size from that of a pinpoint to that of a pinhead, and pressure did not efface them, and there were also pigmented macules of varying color, ranging from a light yellow to coffee color and brown. The red spots always preceded the pigmented macules; some lesions were slightly raised above the level of the skin and infiltrated.

We made a biopsy of a brownish-red macule that seemed to be the most characteristic. Under a lower-power magnification its histologic aspect was that of a dermo-epidermic papule. The dermic papule was characterized by an infiltration localized in the main around the capillaries and formed by elongated or star-shaped cells; interlaced protoplasmic processes occurred in spots. Their nucleus was egg shaped and rather voluminous. Their protoplasm contained small granules of brown pigment. There was, therefore, a spontaneous vital color change, a selection of pigment by these cells, which thus proved their histocellular nature.

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1. Pautrier: Bull. de la Soc. franç. de dermat., 1926, p. 315.

The epidermis over this papule was thickened into a plateau by the disappearance of the interpapillary prolongation of the epidermis. The mucous and the horny layers were of double width; the stratum granulosum also was thicker than in normal conditions.

Between the cylindric cells of the basal layer were numerous chains of brown pigment granules that looked like thin protoplasmic fibrils. These fibrils were connected here and there with a polygonal cell which was filled with the same granules and the nucleus of which stood out sharply through the condensation of the chromatin of the surrounding basal cells. These cells showed numerous, highly ramified processes extending in every direction.

In places in which the basal layer had been cut tangentially one could see some of these pigmented processes in contact with the process of a dermic histiocyte. All these filaments filled with pigment granules appeared to be processes of those polygonal cells, in which we recognized the morphologic equivalent of the Langerhans cells. We shall show later that they were also identified biologically with the Langerhans cells and that they were cells of this type.

The first question to be asked on seeing dermic infiltration with pigmented cells and the Langerhans cells injected with fine granules of the same brown pigment is concerning the nature of this pigment. Most authors think that Schamberg's progressive pigmentary disease is due to melanin.[2] But, since the impregnation with ammoniacal silver-nitrate by Masson's technic gives a negative result, this pigment cannot be melanin. Moreover, on examining sections thus impregnated, one is struck by the absence of melanin in the lesions, while the surrounding skin shows it in normal proportion. On the other hand, by the use of the potassium ferrocyanide method,[3] all these minute pigmentary granules turn prussian blue, which shows that the corium as well as the epidermis contains iron. The anatomic substratum in Schamberg's disease is therefore a dermo-epidermic siderosis. The pigmentary changes in Schamberg's disease are not due to melanin, but to ferric pigment.

The second question to be answered concerns the origin of this ferric pigment. It seems likely that it is derived from hemoglobin, although

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2. By looking through the literature, we have ascertained that only two authors, as far as we know, have already spoken of the pigment as being ferric. Kingery: J. Cutan. Dis. **36**:166 (March) 1918, and Tashahiro, Acta Dermat. Japan, 1925. The latter also noted the absence of melanin pigment. Both note the presence of only ferric pigment in the derma and neither of them found that it was distributed into the epidermis and, in particular, into the Langerhans cells.

3. Cut thin sections embedded in paraffin. Dip the section in one part of 2 per cent solution of potassium ferrocyanide and two parts of 1 per cent solution of hydrochloric acid; place in the drying apparatus at 22 C. for from fifteen to thirty minutes. Dye with Bresiline.

we must call attention to the fact that the blood pigment reabsorbed by the dermic histiocytes shows something different as a rule.

We have been able to study it in three dermatoses which are examples of two other varieties of cutaneous "siderosis."

The first dermatosis is that in which occur the ocher-colored macules frequently observed on the legs of persons with varicose veins; these light or dark brownish spots, however, are merely the terminal stage of originally hemorrhagic patches which end in pigmentary infiltration. One can often see clearly by simple inspection, or better still by exerting pressure with glass, small genuine hemorrhages infiltrating the derma. Histologic examination corroborates this by showing foci of cutaneous apoplexy with large or small masses of red corpuscles separating the bundles of collagenous tissue.

In every case of pigmentary dermatitis of the lower extremities that we have been able to study, the hemosiderin has had a different appearance from that in Schamberg's disease. While in this disease it is found scattered in extremely minute granules in the body of the histiocytes forming the dermic infiltration as well as in the Langerhans cells, in pigmentary dermatitis it is found only in the corium cells in large masses that are at times of almost crystalline structure. We have never found hemosiderin in the epidermis. It would seem that in this state, which we shall call "coarse" in want of a better expression, or perhaps simply "big lumps," it does not lend itself easily to transportation. We could perhaps ask ourselves whether there is but one ferric pigment derived from hemoglobin, a single "hemosiderin" and whether there is no chemical difference between the ferric pigment found in these two diseases and which always turns the same color when treated by potassium ferrocyanide.

The second cutaneous "siderosis" that we have studied is the disease improperly called "multiple hemorrhagic sarcoma of Kaposi." In this disease, characterized, among other factors, by a striking new formation of blood vessels, one often finds small hemorrhagic foci in the midst of typical lesions. Here also hemosiderin has a different aspect from that in Schamberg's disease. The granules of ferric pigment appear to be medium sized as compared to the big lumps in the pigmentary dermatitis of the lower extremities and the minute granules found in Schamberg's disease, but here also they are found only in the corium; they reach the uppermost strata of the papillary layer but never penetrate the basal layer of the epidermis. The latter is thickly studded with melanic pigment that seems *a priori* likely to impede the transportation of the ferric pigment. The third type of siderosis is purpura, in which one can verify the extravasation of red corpuscles around the vessels; the adjacent histiocytes are filled with ferric pigment in big lumps, an aspect analogous to that seen in the ocher dermatitis of the lower limbs.

However it may be, the peculiar appearance of hemosiderin in Schamberg's disease, and the fact that until now we have found it capable of being transported in the trophomelanic network only in this disease, suggests the question as to whether a special mechanism is not the origin of these three sideroses.

In the pigmentary dermatitis of the lower extremities and in Kaposi's sarcomatosis there are genuine hemorrhages in the tissues. Is it impossible that in Schamberg's disease there are no rents in the vessels, but that the hemoglobin oozes through the walls of the capillaries that appear intact but perhaps have undergone a biologic transformation and have become pervious or semipervious? The pigment would then be reabsorbed little by little, and would perhaps be distributed by the dermic histiocytes to the ramous cells of the epidermis, which are thus, biologically, true Langerhans cells. Would not the study of the blood in Schamberg's disease help one to understand this process?

We have not yet been able to make a comprehensive study of the blood of our patient, but we intend to do so. The clinical examination disclosed a tendency to recurring epistaxis. There were 3,870,000 red cells and 7,700 white cells. The coagulation time was five minutes and the blood-plates numbered 150,000. The "signe du garrot" was not found.

We believe that the absence of melanic pigment is due to the impregnation of the network of the histiocytes and Langerhans cells by the ferric pigment, which creates a true mechanical obstruction.

We must comment here on a difference from the condition in xanthelasma, in which the circulation of fat, which extends into the epidermis, does not seem incompatible with the normal melanogenesis, the Langerhans cell being able to hold fat and pigment at the same time; in our case, it would seem that the presence of hemosiderin hindered the melanogenesis.

Even if the intricacies of the initial process in the formation of the ferric pigment (extravasation of red corpuscles in natura or transudation of hemoglobin through the walls of the capillaries) remain hidden and make further research work necessary, the chief fact that remains is the impregnation of the trophomelanic network and the new method of controlling the dermo-epidermic interchanges by the study of hemosiderin in Schamberg's disease.

Thus a new reagent allows us to discover a new substance participating in the dermo-epidermic interchanges: after silver for melanin and scarlet R for the fats, in certain cases the ferrocyanide discloses a circulation of ferric pigment. We are convinced that we have hitherto found but a small part of the degree and variety of these interchanges. New methods will enable us to demonstrate them under different conditions.

TROPHOMELANIC NETWORK AND RETICULO-ENDOTHELIAL SYSTEM

We believe that we have proved beyond doubt, by suitable staining of melanic pigment, fats and esters of cholesterol in xanthema and of hemosiderin in Schamberg's disease that there exists an intracellular and intercellular circulation linking the epithelium with the internal media through a network of cells united in a common function, which Borrel, and after him, Masson, called the trophomelanic system (plan trophomelanique). We must now ascertain the general meaning of the trophomelanic system in the organism. Is it a system peculiar to the skin or has it got a counterpart in other organs?

Twenty years ago, Ribbert published the result of his research work on the retention in the tissues of lithia-containing carmine. Having brought the carmine into the organism (by intravenous, intraperitoneal and hypodermic injections), he found that only part of the carmine was eliminated through the kidney, while part of it was kept in the tissues and could be found in certain cells, always the same in a given tissue.

The carmine was found in the epithelium of the liver and of the kidney; it was accumulated in Kupffer cells, in the endothelial and reticular cells of the spleen and the lymph glands, in the endothelial cells of the osseous marrow, in the endothelial vascular cells of the suprarenal medulla and in certain ramous cells of the connective tissue.

Ribbert's observations have been corroborated since by numerous authors who have used various methods of vital staining.

Goldmann showed the great functional importance and the biologic unity of this cellular system, recently called the reticulo-endothelial system by Aschoff.

We are convinced that the corium cells interposed between the endothelium and the Langerhans cells are part of the reticulo-endothelial system, and that the trophomelanic system must be held to be the peripheric expansion of the reticulo-endothelial system.

If this paper were not already too long, I should like to discuss some highly interesting problems set by the study of the part played by the reticulo-endothelial or trophomelanic system in the structure of the tuberculous lesion, in syphilis that has all the distinguishing characteristics of a reticulo-endothelitis and, lastly, in the elective transportation and distribution of drugs in certain cells. But in order to keep on solid ground, we thing we are entitled to close this paper with the following conclusions:

There exists in the skin a trophic system, the peripheral expansion of the reticulo-endothelial system of Ribbert-Goldmann-Aschoff, which is constituted by a cellular network linking the vascular endothelium with the epithelium through the medium of the perithelial, dermic and anastomosed Langerhans cells.

This system, in which there is a double current of important materials, is the seat of a biologic process, the importance and variety of which can only be guessed at, and unites in a common function cells derived from different embryonic tissues. On account of its trophic function and its pigmentary action which has been accurately studied, the name "trophomelanic network" (réseau tropho-mélanique) given to it by Masson is appropriate.

We propose to definitely associate with this trophic system the name of the man who first conceived its general outline (Borrel) and of the man who began its study in the human being (Masson).

Besides the plasmatic circulation, a place must be assigned to an intercellular and intracellular circulation which plays a prominent part in the dermo-epidermic interchanges. This circulation has been made evident only in some conditions and only when the substances carried from cell to cell lent themselves to adequate methods of staining which made them apparent. We have been able to ascertain only a small part of its activity, but new methods will enable us to ascertain its function under different conditions.

The intercellular circulation effected through the trophomelanic system must take the prominent place in the pathologic processes of the skin to which it is entitled. Numerous pathologic processes of the skin must be studied again on the basis of these new data. We are convinced that many problems will be solved as well as many new ones met, some of which we have already mentioned in this paper.

ABSTRACT OF DISCUSSION

Dr. Sigmund Pollitzer, New York: I am not prepared to discuss this paper without an opportunity for closer study, but I believe that the subject is one of extraordinary importance. We are fortunate in having the matter presented to this association. Professor Pautrier has opened up fields that carry us into the intimate depths of the physiologic processes of the skin, and by means of the new method has given us an insight into changes of which we had heretofore never thought, or perhaps have merely noticed without having any idea of their significance. The transfer of pigment from the cutis to the epidermis is, of course, not a new observation, but it is the mechanism of this passage which Professor Pautrier has so clearly demonstrated. The conveyance of cholesterol in xanthoma from the cutis to the surface layers is a process we have not seen in actual progress. We have all seen, however, particles of the cholesterol fatty acids in the epidermis in cases of xanthoma, but the vehicle of their transference has now been made apparent.

I was particularly gratified by the incidental confirmation of the work which was done about fifteen years ago by Dr. Wile and myself, in which we showed, I think for the first time, that it was the cholesterol deposited outside the vessels that produced the xanthoma cells.

Without an opportunity of studying the paper, I feel incompetent to discuss it. I feel certain that I voice the feeling of this association in saying that the paper is one of fundamental importance, and one which will bring about many changes in our ideas of the physiologic processes of the skin.

I should like to ask Professor Pautrier whether he does not think that some of the structures described as the Herxheimer fibers have not been confused with the Langerhans cells at times. Many years ago Kromeyer published a brochure on the anatomy of the skin in which he set forth the theory that what is called the epidermis and papillary layer are physiologically one structure. It occurs to me that what we have heard is a confirmation of that view.

Dr. J. Frank Schamberg, Philadelphia: Like Dr. Pollitzer, I feel a sense of inadequacy in discussing the paper which Dr. Pautrier has presented. The photomicrographs and drawings that he has exhibited strongly confirm the thesis he has presented. He has made a notable contribution to physiologic and pathologic conditions in the skin, and perhaps his work will tend to throw some light on the pathogenesis of the diseases he has considered. I am naturally much interested in his studies of the "progressive pigmentary dermatosis" and hope he will be able to clarify the method by which the pigment reaches the tissues. I should like to inquire whether it is primarily carried there by blood cells, as some have suggested. I think the clinical features of the diseases, amplified by many observers, confirm the view that it is not merely a hemostatic dermatitis.

I am glad that Dr. Pautrier has confirmed the observation of Kingery that the pigment is hemosiderin. I am also interested in the dermo-epidermal exchange of pigment. This is something which is new to all of us and may help greatly in our knowledge of many diseases of the skin.

I will refer briefly to some studies concerning the possible etiology of progressive pigmentary dermatosis in which I am engaged at the present time. I have found that in three cases recently studied there was a high cholesterol content in the blood, running from 225 to 300 mg. I have not as yet had the opportunity to stain fresh sections of skin for deposit of cholesterol; a study of miscellaneous dermatoses indicates that high cholesterol content is uncommon among about fifty cases of diseases of the skin that we studied.

Dr. Fred D. Weidman, Philadelphia: I feel much in the same position as Dr. Pollitzer and Dr. Schamberg. It is difficult to do justice to the paper without having had actual experience with the work and without examining the sections first hand. I am sure Dr. Pautrier would enjoy that discussion most which came from those who had done similar work. We all realize, however, that this is something really new. Perhaps not a new biologic principle, however, for in biology there are many examples of materials passing from one cell to another without the presence of amebic processes—pseudofodia for instance. I have seen it in fungi, but medically it is certainly a new thought to us. It is new, whether the Langerhans cells are considered as epithelial or as connective tissue. The decision on that point must not stand in the way of our judging whether biologically it is possible to transfer particulate matter from the reticulo-endothelial cells of the corium to the Langerhans cells. The observation is particularly well fortified because Professor Pautrier has not been content to draw conclusions on the basis of but one substance, but has investigated several substances as different as pigment and fatty substances, for instance.

I did not get the full sense of Dr. Pautrier's remarks about the vital dyes in the peritoneal cavity. I thought he was going to say something about producing a widespread, generalized cramming of the reticulo-endothelial system and then looking for its effect as expressed in the skin. I would like to hear more about this.

It is too bad that we cannot avail ourselves of dermatoscopy and directly observe the transfer, but this is probably out of the question because the magnification required would be too great for present-day dermatoscopy.

DR. WALTER J. HIGHMAN, New York: It is always a new experience when a branch of medical science which one has thought dead has been revitalized by an investigator who has illuminated what appeared to be drab and incapable of illumination. By means of the studies just unfolded, Professor Pautrier has revealed a liaison between the cutis and epidermis which we had not been able to explain. There is a connection between the two, and in many instances it is impossible to decide which is the parent and which the offspring, although the parent seems to be in the reticulum. This view of the subject is not entirely consistent. I recall an article which appeared some years ago by Schridde, regarding epithelial threads, in which he showed a close relationship between the epithelial threads and elastic tissue. There could not have been an embryonal relationship, for the epithelial cells had to grow down to meet the epidermis, but a relationship was established there later. There must be some zone at which the contacts between these embryologically related tissues are anatomically and physiologically perfected, as Dr. Pautrier has shown. I think some dermatoses will be explained through Dr. Pautrier's work. I think it has a bearing on epidermolysis bullosa and several other conditions.

THE USE OF GENTIAN VIOLET LOCALLY IN DERMATOLOGIC CONDITIONS *

ALBERT R. McFARLAND, M.D.
ROCHESTER, N. Y.

Among the various dyes used chemotherapeutically within recent years, gentian violet has acquired a prominent place in medical literature. Physicians are greatly indebted to Churchman,[1] Kolmer,[2] and other investigators for extensive experimental work done on this drug. From the bacteriologic standpoint, Churchman finds that 90 per cent of the gram-positive organisms fail to grow in a culture medium containing gentian violet in a dilution of 1 : 1,000,000, while inhibition of growth was noted in dilutions as high as 1 : 2,000,000.

Clinically, Churchman reports several cases of amputated stumps at the Walter Reid Hospital, in which infection was caused by diphtheria organisms, and in which the infection cleared up after a few applications of gentian violet, after various other therapeutic measures, including antitoxin, had failed.

Davis [3] reports a series of eighteen cases of empyema in which infection was caused by staphylococci and pneumococci and in which the infection cleared up rapidly after the injection of gentian violet intrathoracically in a 1 : 1,000 aqueous solution.

Gentian violet has been used intravenously with more or less success in cases of bacteremia. Were it not for the frequent reactions which occur following its intravenous use, and which discourage the physician, probably more gratifying results could be reported.

Kolmer suggests its use in some of the hitherto almost invariably fatal cases of streptococcic and staphylococcic meningitis and peritonitis.

Conner [4] has recently reported encouraging results from the use of gentian violet by mouth in cases of pernicious anemia. The cases of twenty-three patients who have been under observation for from seven months to one year are summarized. These patients were given as high as 50 cc. of a 1 : 1,000 aqueous solution three times a day. While the

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* Read before the Section on Dermatology and Syphilology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

1. Churchman, J. W.: J. Exper. Med. **33**:569 (May) 1921; Selective Bacteriostasis in the Treatment of Infections with Gentian Violet, J. A. M. A. **74**:145 (Jan. 17) 1920.

2. Kolmer, John A.: Chemotherapy: with Special Reference to Treatment of Syphilis, Philadelpia, W. B. Saunders Company, 1926, pp. 154-184.

3. Davis, R. C.: Am. J. M. Sc. **166**:743 (Nov.) 1923.

4. Conner, H. M.: M. J. & Record. **125**:9 (Jan. 5) 1927.

observation period is short and may be of questionable value so far as pernicious anemia is concerned, it is interesting to note the observations on the blood from the point of view of resistance to infection, as shown by an increase in the defense mechanism of the blood. A definite increase in erythrocytes, hemoglobin and leukocytes was noted. This may explain in part how the drug works in combating infection. Conner also suggests its use locally for the glossitis of pernicious anemia.

In view of the fact that this dye is bactericidal in vitro, and that it has been more or less efficacious in treatment by local applications, intrathoracically, intravenously and orally, it would seem probable that more extensive use might be made of it in the field of dermatology. I, therefore, wish to report some observations made following its use locally in private practice during the past two years.

The preparation chosen was as follows:

	Cc.
Gentian violet	6.0
Ethyl alcohol (80 per cent)	24.0
Distilled water to make	120.0

This makes a solution of approximately 5 per cent strength. The alcohol acts as a solvent and makes the dye more penetrating. The strength of the solution was somewhat arbitrarily chosen, and perhaps more exhaustive experimentation would show that a slightly different concentration would be more desirable. Various clinicians and investigators have used solutions varying in strength from 2 to 10 per cent.

My first experience with its use occurred about two years ago.

I was called in consultation in the case of a child 5 months old, who was suffering with a severe pustular infection of the chest and head. Crusted pustular lesions practically covered the face, scalp, chest and upper part of the arms. There was also evidence of excoriation and bleeding. There was rather an unusual history in the case as the parents had previously lost two children who had died of what had been diagnosed as pustular infantile eczema. It has been unusual in my experience to see a case of infantile eczema end fatally, but the history of this child's past condition as given by the mother sounded much like that of an ordinary eczema. Results of the general physical examination were negative, but the temperature ranged from 104 to 105 F., and the child looked extremely ill. It was concluded that the fever was probably the result solely of the cutaneous condition. A 5 per cent crude coal tar ointment had been applied without avail. Because of the preponderance of the infectious element, I suggested the part time use of wet dressing of 1:4,000 potassium permanganate to soften the crusts and to act as an antiseptic; this was to be followed by the application of a 2 per cent ammoniated mercury ointment. This was continued for four days, during which time the temperature ranged from 103 to 104 F. The child appeared to be getting weaker, and the skin lesions were little if at all improved. I then decided to try the somewhat radical procedure of painting the child's head and chest completely with a 5 per cent gentian violet solution twice a day. Before each application as many crusts were removed as possible without

causing bleeding, and the raw surfaces were painted again. Within two days, the temperature was normal, the skin lesions had been transformed from offensive crusts to dry scabs and the general condition was improved; within a week, the child was dismissed from the hospital. Several months later, I saw the patient during a slight attack of ordinary infantile eczema, which cleared up promptly by the use of the roentgen ray and crude coal tar ointment. I concluded that the eczema had become infected by pyogenic organisms which were fortunately susceptible to the germicidal activity of gentian violet, and I believe that the child's life was saved by the application of this therapeutic measure. I did not attempt to cultivate the prevailing organism, but the ready response led me to believe that the treatment was almost specific.

From the character of the lesions, I felt certain that this was not a case of Ritter's disease; neither was it pemphigus neonatorum, although Sauphar [5] has recommended the use of gentian violet locally in pemphigus neonatorum.

Shortly after this experience, a patient with an obstinate case of infectious eczematoid dermatitis, so diagnosed by the late Grover W. Wende, came under my observation. The lesions involved the legs from the knees to the ankles and failed to respond to the usual antiseptics. The condition cleared up promptly, however, after three or four applications of gentian violet.

Following these two experiences, I have made use of gentian violet therapeutically in various pyogenic conditions or as a preventive measure when infection was likely to follow.

VALUE OF TREATMENT IN VARIOUS CONDITIONS

Impetigo.—Every dermatologist knows that impetigo contagiosa is, as a rule, a relatively easy condition to clear up with the use of ammoniated mercury ointment or with this ointment combined with a wash of mercuric chloride and the quartz light. It has been my experience, however, that the lesions in a few cases, especially those on the bearded region of men, are extremely resistant to treatment.

Smith and Burky [6] have called attention to the efficacy of a 5 per cent alcoholic solution of gentian violet in impetigo, especially when the predominating organism is the staphylococcus rather than the streptococcus. I have had four such cases in which the lesions continued to be active for a period of six weeks or more. The patients in all four cases responded to treatment within a few days following the application of gentian violet twice daily. Improvement occurs when folliculitis and boils are painted twice daily with gentian violet.

Fulgurated Lesions.—The most valuable use which I have found for gentian violet is in the postoperative treatment of lesions which have

5. Sauphar, G.: Medecine **4**:542 (April) 1923.

6. Smith, D. T., and Burky, E. L.: Bull. Johns Hopkins Hosp. **35**:78 (March) 1924.

been fulgurated or treated by diathermy. Formerly it was too often my experience to find that when a group of warts was fulgurated, the patient would return in a few days with many of them badly infected and distended with a seropurulent fluid. When they were opened, a raw tender area remained; if suppuration had gone far, there were often needless scars. I now remove the burned tissue with a curet after fulguration and paint the denuded areas with gentian violet. If care is exercised to keep the skin dry for about twelve hours, the dye becomes set and does not wash off with soap and water. A dry clean crust forms, which drops off in about a week. When this method is used, infection rarely occurs, bandages or dressings are unnecessary, and the patient suffers little discomfort or inconvenience.

Epitheliomas.—Epitheliomas which have been destroyed by diathermy may be treated in the same way. In these lesions, however, in which the destruction of tissue is often deep, I believe that it is advisable to use the gentian violet only until granulations begin to form. When this stage is reached, epithelial proliferation can be hastened more by the use of a mildly stimulating ointment, such as 3 per cent balsam of Peru in a base of hydrous wool fat. Since beginning to use this method, I have treated nearly two hundred patients who had this type of condition, and the results have uniformly been too good to be attributed to chance.

Molluscum Contagiosum.—Another condition in which this method is useful is in the postoperative treatment of patients with molluscum contagiosum. I recently saw a boy, aged 18, who, by actual count, had over 200 molluscum lesions on the chest and back, some as large as a small pea. A small wheal was made at the base of each with procaine, the lesions were fulgurated lightly, the coagulated masses were removed with a small curet, and the bases were painted with gentian violet. The entire number were removed at two sittings. Practically no postoperative discomfort was experienced, infection did not occur, and the lesions did not recur.

Mycotic Infections.—I have had one case of mycotic infection of the mouth which cleared up by the use of gentian violet, but I have tried this treatment repeatedly for epidermophytosis of the feet without benefit.

It would seem that gentian violet is selective in its action on pyogenic organisms. This is borne out by experimental work on pure cultures of various organisms and also by the variation in response in different types of disease. I have tried it in three cases of sycosis barbae of the coccigenic type without avail. This, however, may be due to the fact that the dye does not penetrate into the hair follicle sufficiently deep to reach the organisms.

In my opinion, the greatest drawback to the more common use of this drug locally is its color. Even a few spots on exposed parts of the body treated with the dye will attract attention, to say the least, while an extensive application to exposed surfaces calls for hospitalization or confinement at home.

TECHNIC OF APPLICATION

A few points regarding technic may be of value. The surface to be treated should be as dry as possible. Time should be given for denuded surfaces to dry. This may be hastened by applying cotton saturated with a 1:1,000 solution of epinephrine to the area involved; or, in the case of verrucae and new growths, the surface may be lightly fulgurated. If the application is made to an oozing surface, the dye will run and cause needless and disagreeable stains and will also be ineffective.

It is important to remove all crusts from lesions that are to be treated. The presence of an albuminous or mucoid deposit undoubtedly interferes with the action of the drug mechanically and probably chemically. Kolmer points out that the indifferent results obtained in using various dyes in diphtheritic lesions of the throat is due to the inability to free the surface from mucoid deposits. No surface should be treated when there is hemorrhage or oozing, if it can be avoided.

A small applicator wound with cotton is the most convenient instrument with which to apply gentian violet, as a camel's hair brush is likely to splash the surrounding tissues.

SUMMARY

1. Some results are reported concerning the clinical use of gentian violet locally in certain pyogenic infections of the skin and its use as a preventative of infection.

2. Good results have been obtained in the treatment of infectious eczematoid dermatitis, certain cases of impetigo, folliculitis, furunculosis and one case of mycotic infection of the mouth.

3. Gentian violet is useful in postoperative treatment when diathermy or fulguration has been employed.

4. Negative results were obtained in the treatment of patients who had coccigenic sycosis barbae and epidermophytosis of the feet.

5. The conspicuous color and tendency to staining are the chief drawbacks to the more frequent and extensive use of gentian violet.

ABSTRACT OF DISCUSSION

DR. JOHN H. STOKES, Philadelphia: I have tried Dr. McFarland's methods for a year, especially following electrodesiccation, and I have found them satisfactory. The patient is relieved of the constant avoidance of water and dabbing of alcohol. In the axilla, and in the management of the parungual wart the method is often a godsend. It is remarkable how the "paint" will keep absolutely sterile a lesion that has every excuse for becoming infected. It sometimes seems as if it kept the site too reactionless, and, in the removal of epithelioma for example, as if it might not almost be better to permit some inflammation to toughen the scar. But for cosmetic results, gentian violet, apart from its immediate conspicuousness, is a real aid. So far as pyogenic infections are concerned,

most patients respond to treatment with quartz lamp and the small dose of roentgen ray with the use of ammoniated mercury and green soap. But during the past winter there was a group of resistant infections in which gentian violet was triumphant. Unfortunately, I do not know of a way to distinguish these infections at the outset. If the dye could be decolorized by the finding of a germicidal leuko-base, it would be of even more value, as Dr. McFarland has suggested, but as it is, it has great virtue.

Dr. Dudley C. Smith, University, Va.: Dr. E. S. Sanderson and I recently reported the effect of gentian violet on two strains of yeast. One strain was obtained from a fatal case of systemic blastomycosis; the other strain was found in cultures from saliva. In both instances, growth was always prevented in 1 : 500,000 dilution of gentian violet; in most cultures, with the dye in dilution of 1 : 1,000,000, growth was inhibited. Gentian violet can be given intravenously in dosages of 0.5 mg. per kilogram of body weight, sufficient to make an in vivo dilution of 1 : 200,000. Our two cultures are not pathogenic for laboratory animals, and for this reason the effect of gentian violet on yeast organisms in living tissue has not been investigated. However, this is a suggestive reason for trying gentian violet intravenously in deep-seated and systemic yeast infections.

Dr. Jeffrey C. Michael, Houston, Texas: Not only gentian violet, but other dyestuffs are of value in some disorders. As to the treatment with gentian violet, it appears to be specific in thrush and in other yeast infections of the mucous membranes. Dr. McFarland did not find it of value in dermatophytosis; and if he means that it is not curative, I can agree with him. On the other hand, in the vesicular type it has been of service to me precursorily to the use of Whitfield's ointment. It has also been rapidly successful in occasional stubborn cases of bullous impetigo. The explanation for its action in these cases probably lies in the fact that the bullous type of impetigo is due to staphylococci. Unfortunately, because of the staining produced, its use is limited to the covered parts of the body.

Dr. Robert V. Hoffman, South Bend, Ind.: I object to referring to gentian violet as a dye solely. I think it possesses properties that are not possessed by other dyes, such as mercurochrome. While Dr. McFarland has had some success in treating pyogenic infections locally, I have seen cases of furunculosis that would clear up forty-eight hours after intravenous injection of gentian violet. This has occurred in generalized furunculosis, impetigo, acne with large pustules and even in large abscesses associated with diabetes, in which 0.5 per cent gentian violet was used. Thirty cubic centimeters of the solution to the average 150 pound man was employed, and the bad effects described in the literature have never occurred in my experience. I have never seen the darkening of the skin reaction, described by those who first used it, and I have used it in one hundred consecutive instances. There is one bad effect, and that is thrombosis of the vein, and there will always be thrombosis of the vein affected. I think it is of specific use, at least it seems to stimulate some effect in the blood which wipes out these pyogenic infections.

Dr. Moses Scholtz, Los Angeles, Calif.: The bactericidal value of aniline dyes in superficial pyodermas cannot be disputed. I can readily assume that the gentian violet will prove effective in these cases, especially in those of a circumscribed type. However, the same cosmetic objection of a conspicuous discoloration in generalized cases, particularly on the face, against treatment with mercurochrome or acriflavine, holds good also in the case of gentian violet. In exceptional cases of pyoderma in which the patients do not respond to mercury ammoniate ointment, I have found nothing more effective, cleanly and pleasant than that well known French preparation, consisting of 0.5 per cent of zinc sulphate and 0.33 per cent of copper sulphate dissolved in camphorated water. We also should not forget the splendid effects of ultraviolet light in the superficial pyogenic infections of the skin.

DR. WILLIAM J. MACDONALD, Boston: Will Dr. McFarland give an outline of the use of this method in furunculosis, and specify the dosage?

DR. C. F. LEHMAN, JR., San Antonio, Texas: We should consider the photodynamic action, the dye plus the light. There should be a control series of patients treated in the dark, if possible. I have used gentian violet with the ultraviolet light, and it has given results that are not due to chance.

DR. A. R. MCFARLAND: The work was confined to the local use of the dye, and I was glad to hear the remarks regarding its intravenous use. I have thought of using it in that way but have not done so thus far. Perhaps my failure in some mycotic infections was due to the fact that I did not continue it long enough. I had only four or five patients which were treated for only a few weeks, but it may be effective in connection with some form of light therapy.

EPONYMS OF DERMATOLOGY

SECOND SERIES *

HERMAN GOODMAN, M.D.
NEW YORK

INTRODUCTION

"TOMORROW'S ADVANCE DEPENDS ON TODAY AND YESTERDAY"

The current literature and the textbooks refer time and again to a structure in the histology of the skin, to a physiologic property or to a pharmacologic preparation used in dermatology by the proper name of the discoverer, or inventor. As in the case of diseases of the skin named after their finders, one seldom learns more than the eponym. In general, as I have already written,[1] little is known regarding the man whose name is applied, and few would be able to give with accuracy any details concerning him. In this article I will consider the eponyms not included in my former paper in which I gave nearly all the eponyms of diseases of the skin.

I have made every effort to confirm each reference given, but this has not been possible in every instance. Corrections and suggestions for the elaboration of this work will be properly accredited when it reaches book form.

EPONYMS OF ANATOMY, PHYSIOLOGY, PHARMACOLOGY AND SYMPTOMATOLOGY

ALTHAUS' CREAM: *For syphilis.*

Julius Althaus was born March 31, 1831, in Detmoid. He studied at Bonn, Göttingen, Heidelberg, Vienna, Prague and Paris, and settled in London in 1857. He was an honorary and corresponding member of a host of European and American societies. The Hospital for Nerve Diseases in London was founded by him in 1866. He was honored by the governments of Italy and England. Several books dealing with nervous diseases, and syphilis of the nervous system were written by Althaus. Among them are found "Die Elekricität in der Medicin,"

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* Eponyms (eponymos, named after) the name of a disease, anatomic structure, operation, etc., derived from the name of the person who discovered or first described it.

* The illustrations are copies made from those at the Library of New York Academy of Medicine.

1. Goodman, Herman: Eponyms of Dermatology, Arch. Dermat. & Syph. **9**:675-737 (June) 1924.

1860; "Function of the Brain," 1880, and "Syphilis of the Nervous System," 1890, 1891. The cream named after him is made of one part of mercury, four parts of lanolin and 2 per cent of carbolized olive oil. The dose in the treatment of syphilis was 5 minims. Other books by Althaus are: "Spas of Europe," 1862; "Polyneuritis," 1891; "Diseases of the Nervous System," 1877; "Electrolytic Dispersion of Tumors," 1867, 1875, 1879; "Epilepsy, Hysteria, and Ataxy," 1866; "Failure of Brain Power," 1882, 1883; "Infantile Paralysis," 1878; "Trichinosis," 1864, and "Sclerosis of the Cord," 1885. Althaus died in 1900.

Figure 1

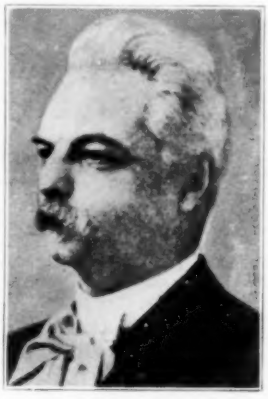

Figure 2

Fig. 1.—Julius Althaus (after Pagel).

Fig. 2.—Guido Baccelli (after the Collection of the Academy of Medicine, New York).

MICROSPORON AUDOUNI.

I have not been able to find data for this eponym.

BACCELLI'S SOLUTION: *Injection for syphilis.*

Guido Baccelli was born Nov. 25, 1832. He was a member of a famous Roman family. As the son of a physician, he showed great interest in science at an early age. He was gold medal student in 1854. Baccelli was a botanist, pathologist and physician. The solution named after him is made of 1 grain of mercuric chloride, 3 grains of sodium chloride and water to 1,000 parts. The solution is warmed slightly after filtration, and 15 minims are given intravenously in syphilis. Prior to his suggestion of this solution in 1894, one of the signs of pleural effusion was named for him. He introduced the treatment for aortic aneurysm by the use of coils of metal (1876), and the injection of malaria patients with quinine (1890). The treatment for tetany with phenol was suggested by him in 1905. To his credit there are many

other papers of highest value. Although he was admitted to practice in 1853, Baccelli was a political storm center. He outlived the period and became the most famous consultant of his time in Italy. His book was published in Rome in 1902. He died in 1916.

BACH LAMP: *Mercury vapor arc in quartz—air cooled.*

The so-called Alpine sun is sometimes spoken of as the Bach lamp, for Hugo Bach, author of "Ultraviolet Light by Means of Alpine Sun Lamp, Treatment and Indications," 1916.

BAUER'S TEST: *Modified Wassermann test.*

Bauer's test is a modification of the Wassermann test, in which one relies entirely on the antisheep amboceptor present in the patient's serum.

BAUMES' LAW: *Same as Colles' Law, q.v.*

Baumes' law was named for Jean Baptise Baumes, a Frenchman, born in 1777. He died in 1828.

BEAU'S LINES: *On nails after severe illnesses.*

Transverse lines seen on the finger-nails after convalescence from exhausting illnesses were named for Joseph Honore Beau, a French physician, born May 8, 1806. He graduated at Paris in 1836. From 1844 to 1852 he was a professor of medicine. All his work was original; he made no compilations. Pathologic physiology and the physiology of the heart and lungs were the subjects of his writings. He died Aug. 11, 1865.

BEAUPERTHUY'S METHOD: *Treatment of leprosy.*

About 1854 Louis Daniel Beauperthuy advanced the idea that mosquitos could transmit malarial fever. His name is entered in this list because he suggested for the treatment of leprosy a regimen of hygiene, bathing with olive oil, mercuric chloride given intramuscularly and a diet free from salted meats.

BECHTEREW'S SIGN: *Anesthesia in popliteal space in nerve syphilis.*

Vladimer Miklailowich von Bechterew, a Russian neurologist, was born Jan. 22, 1857. He studied at St. Petersburg, Leipzig and Paris, and was professor of psychiatry at St. Petersburg. He published many papers on the brain and the spinal cord, and wrote on the anatomy and physiology of the central nervous system. The rediscovery or discovery of bundles and nuclei in the brain and cord are credited to him.

BECHTEREW'S REFLEX: *Dilatation of the pupil on exposure to light in tabes and paresis.*

Bechterew wrote "Retrecessment reflexe de la pupile par la lumiere," 1883, and "Functiones nerveses," 1909.

BECQUEREL RAYS: *Radioactive rays.*

Henri Becquerel, born in 1851, was a member of a distinguished French family of scientists. The discovery of the roentgen rays suggested to Becquerel that fluorescent substances might also possess the peculiar property of giving off rays capable of penetrating opaque matter. His experiments for radioactivity of pitchblende led to the work of the Curies in the discovery and isolation of radium. Becquerel rays are used sometimes as a synonym for radioactive rays. He died in 1908

BERGER'S SIGN: *Irregularly shaped or elliptic pupil in the early stage of tabes, paresis, etc.*

Emile Berger wrote on "Visual Disturbances in Tabes Dorsalis" in 1901. He wrote extensively on the subjects concerning the eye, for example, "Les troubles oculaires d'origine genitale chez la femme," 1905. This book was translated into German.

Fig. 3.—Ernest Besnier (after Annales de dermatologie et de syphiligraphie).

BESNIER'S BIOPSY: *Excision during life of an eruptive fragment or new growth to establish diagnosis by examination of excised pieces.*

Ernest Besnier was born in Paris in 1831. He studied at St. Louis Hospital, and became a member of Academy of Medicine. He translated Kaposi's work into French and published that of himself and Doyen in 1881. He wrote many short articles on diseases of the skin. the article on rheumatism for the "Dictionnaire encylopedique des sciences medicales," and also the Pictorial Atlas of Skin Diseases, 1895-1897, and edited the great volume of "Pratique Dermatologic," 1900.

BESTUCHEFF'S MIXTURE OR TINCTURE: *Used in erysipelas.*

Alexis Petrovich Bestucheff was born June 2, 1693. He died April 21, 1766. There is not anything particularly interesting in his life. His name is connected with ethereal tincture of ferric chloride, 1725. He kept the formula a secret, but was paid 3,000 rubles for it by

Catherine II. Later, Lamotte claimed the chemical formula as original, hence the name Lamotte's gold drops.

BIERNACKI'S SIGN: *Analgesia of ulnar nerve in tabes and general paralysis.*

Edmund Biernacki was a Polish physician of Lemburg, Austria, who was born in 1867 and died in 1912.

BORSIERI'S SIGN OR LINE: *Fingernail drawn along the skin in early stage of scarlet fever which leaves a white line that quickly turns red.*

BRONSON'S ANTIPRURITIC OIL.

Edward Bennet Bronson was a New York dermatologist. He was born in 1843, and died in a fire at his home in 1925. Formerly he had been a professor of dermatology. He wrote "The Etiology of Itching," 1891; "Itching," 1903; "Dermatological Classification," 1884; "Treatment of Acne," 1896, and "The Roentgen Ray in Dermatology," 1903. Bronson's oil contained, phenol, liquor potassi, of 1 drachm each, linseed oil, 1 ounce, to which was added oil of bergamot, according to the pharmacist's art.

BUROW'S SOLUTION.

Karl August Burow was a German surgeon who lived from 1809 to 1874. He studied theology for one semester, and then medicine. He was associated with Baer, Sachs and Burdock, and was influenced by Dieffenbach. In addition to having a private clinic in surgery, he was at one time a university professor, from which position he resigned in 1859. He was consultant to the army in 1866, and was in active military service in 1876, during which time he became ill. A series of thirty-nine articles on surgery and ophthalmology were published by him, and he wrote on the treatment of wounds. His son Ernest was also a surgeon.

Burow's solution contains: alum, 5 parts; lead acetate, 25 parts, and water to make 500 parts.

CLARKE'S TONGUE: *Hard fissured nodular tongue of syphilis.*

Sir Charles Mansfield Clarke, an English physician, born May 28, 1782, was the son of John C. Clarke, a famous physician and obstetrician of his day. Sir Charles was at St. George's Hospital, and at the Hunterian school. He was a pupil of his brother. Clarke became a military surgeon, but returned to the practice of obstetrics and pediatrics. From 1804 to 1821 he taught. Several texts were written by him. He translated from German to English, and also had some work published in the United States. He had a wide practice, was made a baron and was honored by Oxford and Cambridge. He was president of the Society of Relief of Widows and Orphans of Medical Men. One of his works was, "Observation on Disease of Females Attended by Discharge," 1824. He died Sept. 7, 1857.

COCK'S PECULIAR TUMOR: *Extensive septic ulceration of the scalp resembling epithelioma.*

Edward Cock was an English surgeon who was born in 1805 and died in 1892.

COHNHEIM'S CELL RESTS: *Cause for cancer.*

Julius Friedrich Cohnheim, born July 20, 1839, was a German pathologist of great renown and was an assistant to Virchow in 1864 He was later a Prussian army officer. He studied at the Pathological Institute at Kiel, Breslau and Leipzig. His book, "Ueber die Entzündung seroeser Haute," marked him as a pioneer in experimental histology and pathology. His work revolutionized pathologic teaching; he also wrote on the nerves. He discovered the gold method of staining, and worked successfully on the inoculation of tuberculosis of the anterior chamber of a rabbit's eye. He did work on cellular pathology. The method of freezing fresh preparations in microscopic work was intro-

Fig. 4.—Julius Cohnheim (after Pagel).

duced by him. He investigated the nerve-endings in muscles by means of the gold stain which he invented, and discovered the mosaic fields in cross sections of muscles. Among his pupils were Heidenhain, Welsch, Ehrlich, Neisser, Weigert and others famous in their own right. He died on Aug. 15, 1884.

COLEY'S FLUID: *For sarcoma.*

William Bradley Coley is an American surgeon, born Jan. 12, 1862. He graduated from Harvard in 1888. His published work includes "Surgery," 1899; "Bone Sarcoma," 1908, 1919 and 1924; "Carcinoma of the Breast," 1898; "Malignant Disease of the Testes," 1923; "Roentgen Ray on Sarcoma," 1903, and "Mixed Toxins," 1893, 1896, 1901, 1907, 1909, 1914 and 1915. The toxins are those of erysipelas and prodigiosis.

COLLES' LAW: *A new-born child affected with congenital syphilis, even though it may have symptoms in the mouth, never causes ulceration of the breast it suckles, if the mother suckles it, though it is capable of infecting a strange nurse.*

Abraham C. Colles was an Irish surgeon, born July 23, 1773. He studied at Dublin in 1795, and became a doctor in 1797. He went to London afoot. In 1804 he became professor of surgery at Dublin, and continued in office until 1836. He was the leading Irish surgeon of his time. In addition to Colles' law, he has named after him the following: Colles' fascia, Colles' fracture, Colles' ligament and Colles' spaces. He wrote an anatomy in 1831. Colles was the first surgeon to tie successfully the innominate artery. He wrote "Practical Observations on Venereal Disease, and the Use of Mercury" in 1837. In this book, he stated the law that is named for him. He also wrote "Treatise on Surgical Anatomy," which appeared in Dublin in 1811, and in America in 1820. "Lectures on Theory and Practice of Surgery," edited by McCoy, appeared after Colles' death. An American edition appeared in 1845. He died on Nov. 16, 1843.

Figure 5

Figure 6

Fig. 5.—Abraham O. Colles (after Collection of the Academy of Medicine, New York).

Fig. 6.—Jules Comby (after Abt's Pediatrics).

COMBY'S SIGN: *Stomatitis of incipient measles.*

Jules Comby is a French pediatrician, born in 1853. He wrote "Traite des Maladies de l' Enfance," which ran editions in 1895, 1899 and 1902. He also wrote "Diseases of Development," 1891.

COME'S PASTE: *For lupus hypertrophicus.*

Arsenic trioxide.....	15 grains (0.97 Gm.)
Mercuric sulphide.....	1 drachm
Simple ointment.....	2 ounces

COSTER'S PAINT OR PASTE: *For early ringworm.*

Jacques Coster was born in 1795. He studied at Turin. Political dissension sent him from home. He promoted the idea of iodine in

scrofulosis. In 1824, Coster went to Paris. He wrote a number of articles among which was "De l'emploi de l'iodi dans la bronchite et les scrofules," 1823. He died on Jan. 21, 1868.

DELAFIELD'S HEMATOXYLIN.

Francis Delafield was born in 1841 and died in 1915. He was the son of a famous American ophthalmologist (1794-1857).

Delafield published the textbook on morbid anatomy. He was a professor of pathology at College of Physicians and Surgeons. His text is still used, edited by Francis C. Wood.

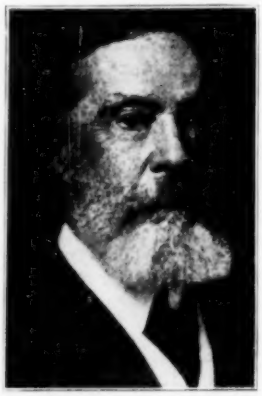

Fig. 7.—Francis Delafield (after the New York Medical Journal).

DeMORGAN'S SPOTS: *Red nevus-like spots said to be seen on the skin in patients with cancer.*

Campbell de Morgan was an English physician who was born in 1811 and died in 1876.

DONOVAN'S SOLUTION.

Michael D. Donovan wrote "Statement of the Medical Effects of Liquor Hydriodatis Arsenici et Hydragyri" for the *Dublin Journal of Medical Sciences,* in 1840. Donovan died in 1876.

The formula given is:

Arsenious acid.....	39½ grains (2.58 Gm.)
Pure iodin.....	76¼ grains (4.95 Gm.)
Mercury	100 grains (6.5 Gm.)

Moisten with alcohol and rub together; anhydriodic acid is then prepared from 32½ grains (2.13 Gm.) of iodine and 4 ounces of distilled water; this is mixed with the previous compound, and three pounds of distilled water added. The whole mixture is then boiled until the residue weighs 1,300 grains (94.5 Gm.) and is clear, water-like fluid. One drachm of this is mixed with 3 ounces of water and a half ounce of syrup of ginger, and 3 tablespoonfuls are given daily. Bulkley notes that this formula is not that of the United States Dispensatory.

LEISHMAN-DONOVAN BODIES.

Major C. Donovan, a British surgeon, found in July, 1903, the bodies in the blood taken in life from splenic structure.

Sir William Boag Leishman, who was born in 1865 and died in 1926, found an organism in a postmortem film taken from a case of fever at Dum Dum near Calcutta. It was afterward described by him in May, 1903, as possibly a trypanosome.

DUCHENNE'S DISEASE: *Tabes dorsalis.*

Guillaume Benjamin Avant Duchenne was a French neurologist, born Sept. 17, 1806. He died Sept. 15, 1875. Of Duchenne it is said that he found neurology a sprawling infant of unknown parentage and succored it to be a healthy youth. Duchenne was the son of a ship captain, and the father intended the son for the sea. Duchenne studied at Paris because of a love for science in 1831. He was one of the pioneers in the use of electricity for diagnosis and treatment. When

Fig. 8.—G. Benjamin Amand Duchenne (after Garrison).

practicing at Paris, he had no teaching or hospital connection, but visited hospitals seeking material. Many advances in the symptomatology of nervous diseases were made by him. He made possible the differential diagnosis of old and new diseases. His greatest work was on the spinal cord. His work in electricity was followed by Remak, Erb and Ziemssen. Duchenne assembled his numerous articles in one great work published first in 1855, with a third edition, 1872; it was translated into German by Erdman in 1856.

DUCHESNE DUPARC CLASSIFICATION: *Division of skin diseases into eleven classes.*

Louis Victor Duchesne Duparc lived about the first 70 years of the nineteenth century. He was an assistant of Alibert, under whom he studied at the Hospital St. Louis, Paris. He made very complete studies of skin diseases, and wrote, "Tableaux synoptique des maladies de la peau," 1843.

His system was along the lines of Alibert.

DUCREY BACILLUS: *Of chancroid.*

Augusto Ducrey was an Italian physician of the nineteenth century. He wrote "Experimentelle Untersuchungen ueber den Anstechungstoff des weichen Schankers und ueber die Bubonen." This appeared in the *Monatshefte für praktische Dermatologie,* 1888, p. 387.

FORSCHHEIMERS EXANTHEM: *Soft palate and uvula show eruption characteristic of rubella in the absence of the cutaneous eruption.*

Frederich Forschheimer was an American who was born in 1853 and died in 1913.

FOWLER'S SOLUTION.

Thomas Fowler was born Jan. 22, 1736, and died July 22, 1801. He studied pharmacy, and in 1774, he studied medicine. His dissertation in 1778 was on "Treatment of Variola with Mercury." He was chief physician at Quakers' Hospital. The name of Fowler comes to us through his work on arsenic. He wrote also "Effects of Tobacco, Diuretic Qualities," 1785; "Effects of Arsenic," 1786, and "Blood Letting," 1795 (this appeared also in German).

Fowler's solution has had a most prominent place in the therapeutics of skin diseases. Each fluidrachm contains half a grain of arsenious acid. Treatment is begun with six drops a day for adults and in a child of 6, half as many, either alone or with infusion of balm. This dose, if well borne, is increased every other day by one drop, until twenty or thirty drops are given; the dose is then diminished; when this precaution is observed, there is not any danger in the long continued use of the remedy.

Some recommend much greater doses, as for pemphigus.

GALENICAL MEDICINE.

Claudius Galen (about 131-201) was the greatest of the Greek physicians after Hippocrates. He traveled extensively and settled in Rome. He died in Greece. Galen's influence on medicine existed for fully fifteen centuries.

GOLGI STAIN.

Camillo Golgi, born July 7, 1844, was an Italian anatomist. He worked at Pavia in 1865, and was a professor of anatomy in 1875, later a professor of histology, and still later a professor of pathologic anatomy. His epoch making studies were on the nervous system (1873-1886). The silver nitrate stain for nerve tissue was introduced by him (1873). He wrote numerous monographs as on the lymphatics of the brain. He showed that the malarial paroxysms were concomitant with sporolation of the parasites (1886). He died in 1919.

GRAM'S STAIN.

Hans Christian Joachim Gram, a Dane, was born Sept. 13, 1853. More than eighty-five pharmacologic studies were made by him. Until 1884 he was at Strassburg. He became a professor of pharmacology. He worked with Friedländer and discovered the method of staining which has earned for him the eponym of Gram's stain.

GRISOLLE'S SIGNS: *Early eruption of smallpox is distinguished from that of measles by the fact that the papules remain discrete to the touch even when the skin is tightly stretched.*

Augustus Grisolle was a Frenchman, born Feb. 10, 1811. He died Feb. 9, 1869. He was at Paris when 18 years old. He studied both the clinical aspects and the therapeutic application in his work at the Hotel Dieu. Grisolle was the author of many articles on elemental subjects

Figure 9

Figure 10

Fig. 9.—Augustus Grisolle (after Traite de Pathologie Interne).

Fig. 10.—Alfred L. P. Hardy (after the Collection of the Academy of Medicine, New York).

and several books, as "Traite elementaire et pratique de pathologie interne," two volumes, Paris, 1844, 1846 and 1850. The ninth edition was dated 1869. The German editions ran in 1845 and 1848. Grisolle was an enemy to any system of medicine. He believed in observation and tabulation of great clinical experience.

HARDY'S LOTION: *For freckles.*

	Gm. or cc.
Mercuric chloride	2
Alcohol.....sufficient to make a solution	
Zinc sulphate	
Lead acetate.....of each	4
Aqua.....sufficient to make	250

HARDY'S OINTMENT: *For scabies.*

Sublimed sulphur	2 drachms
Potassium carbonate	1 drachm
Petrolatum	1½ ounces

HELMERICK'S OINTMENT: *For scabies.*

Sulphur	1 drachm
Potassium carbonate	½ drachm
Petrolatum	6½ drachms

Rub for four or six hours on diseased surface.

HENLE'S SHEATH: *Horny outer portion of the inner root sheath of the hair.*

HENLE'S FRINGED KNOB: *Structure of epidermis in new formation of hair, found in bottom of old hair as brushlike bush made up of epidermal spindles.*

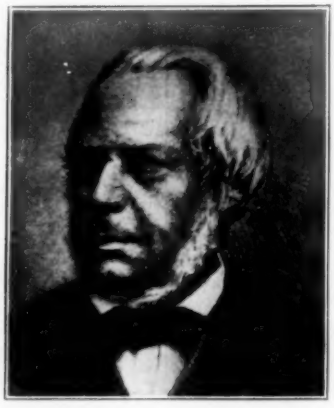

Fig. 11.—Jacob Henle (after Victor Robinson's Jacob Henle).

Friedrich Gustav Jakob Henle was born July 19,.1809, and died in 1885. He was the greatest German anatomist and histologist. His parents were Jews who converted themselves to Christianity. He studied at Bonn, and Heidelberg (1827-1832). He was a prosector for John Muller. Henle became a professor at Zurich, and later at Heidelberg and Göttingen. He did a tremendous amount of work in anatomy. His life is filled with advanced work in the laboratory. His early youthful political association proved some drawback, but in spite of this he made remarkable progress. He was the founder of the modern knowledge of the epithelial tissues of the body. His writings were published widely. He wrote several handbooks on anatomy, pathology and his investigations.

Victor Robinson's splendid book, "Jacob Henle," is an interesting account of Henle's life.

HERXHEIMER'S SPIRALS: *Between the cells of the basal layer at the junction of epidermis and corium.*

HERXHEIMER'S REACTION: *Postarsphenamine.*

Karl Herxheimer was a German dermatologist, born in 1861.

HEUBNER'S DISEASE: *Syphilitic endarteritis of the brain (1874).*

Johann Otto Leonardt Huebner was a German, born Jan. 21, 1843. He studied at Leipzig under Wunderlich, and also at Vienna. He became a professor of internal medicine. The pathology of infancy was the subject of some of his studies. He held numerous teaching posts, and worked at Berlin. He wrote on"Syphilis of the Internal Organs, the Brain and the Spinal Cord" and "Diseases of Children," in addition to several articles for current encyclopedic works. He died in 1912.

Figure 12

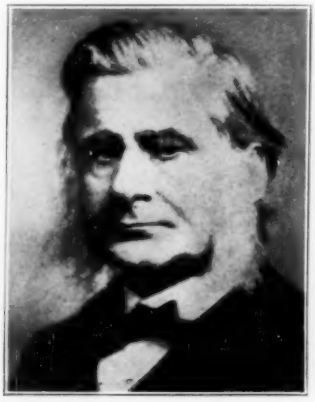

Figure 13

Fig. 12.—H. O. L. Heubner (after the Collection of the Academy of Medicine, New York).

Fig. 13.—Thomas H. Huxley (after the Collection of the Academy of Medicine, New York).

HUXLEY'S LAYER: *The more internal portion of inner root sheath of the hair (1845).*

Thomas Henry Huxley was an English biologist, born May 4, 1825. He served at Charing Cross Hospital and with the navy. He traveled extensively for knowledge, and made the trip on H.M.S. Rattlesnake, 1846-1850. He was made a Fellow of the Royal Society in 1855. Earlier he had been a Gold Medallist of the Royal Society, 1851-1852. At the age of 19, he had already discovered the membrane in the root of the human hair that was named after him. He became a professor of physiology, and Hunterian professor at the Royal Institute. He was president of the Geologic Society; of the British Society for Advance-

ment of Science, and of the Royal Society, and was a Privy Councilor. He died on June 29, 1895.

Huxley was the most famous biologist of the century. He wrote books, gave lectures and made studies in various fields of science among which were many masterpieces.

IHLE'S PASTE.

Resorcinol .....
Zinc oxide.....
Starch .....of each 5 per cent
Soft paraffin..... q. s.

Gotthelf Otto Ihle was born April 30, 1862. He studied at Leipzig and Berlin. He directed Woman's Clinic at Dresden, and did some work in asepsis.

JEANSELME'S NODULES: *Nocardia with nodules on arms and legs.*

Edouard Jeanselme was born in 1858. He worked at Paris and was known to be a keen observer.

JELLINEK'S SIGN: *Browned pigmentation in hyperthyroidism.*

Samuel Jellinek was a Viennese physician.

Fig. 14.—Edward Jenner (after the Collection of the Academy of Medicine, New York).

JENNER'S STAIN.

Louis Jenner was an English physician.

JENDRASSIK'S MANOEVER: *To accentuate the knee reflex.*

Ernst Jendrassik, a physician of Budapest, was born in 1858 and died in 1922.

JUSTUS' TEST: *Transient reduction of hemoglobin following the administration of mercury by inunction or hypodermic injection in syphilis.*

J. Justus was an Austrian dermatologist.

KAHN TEST: *Substitute for Wassermann test.*

R. L. Kahn of Lansing, Mich., introduced this test.

KEYES' PUNCH: *For biopsy.*

Edward Lawrence Keyes was born in 1843 in Charlestown, N. C. He graduated from New York University as a physician and surgeon in 1886, and then studied in Europe. When he returned to the United States he specialized in genito-urinary and skin diseases. There are many publications to his credit, among them several books. His son is a famous surgeon, specializing in urology. The elder Keyes died in 1925.

KIENBOECK'S UNIT. *Roentgen-ray dose.*

Robert Kienboeck was an Austrian radiologist, born in 1871.

Figure 15

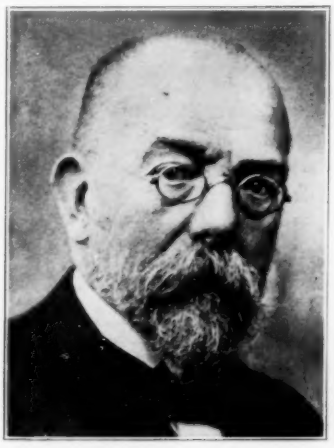

Figure 16

Fig. 15.—E. L. Keyes, Sr. (after the Collection of the Academy of Medicine, New York).

Fig. 16.—Robert Koch (after the Collection of the Academy of Medicine, New York).

KOCH'S ERUPTION: *Morbilliform eruption after injection of tuberculin.*

KOCH'S-WEEKS BACILLUS.

KOCH'S POSTULATES OR LAWS.

Robert Koch, the greatest of German bacteriologists, was born on Dec. 11, 1843, in Klasthal, Hannover, and died on May 27, 1910. He studied at Göttingen (1866) under Jacob Henle, then at Hamburg, and also at Hannover. He served in the Franco-Prussian War. He practiced in Rachwitz, Province Posen. In this small town he began his epoch making studies. His paper on anthrax appeared in 1876; on surgical operations in 1877, and on tuberculosis in 1882. Tuberculin was advanced in 1890. The work on cholera, and anthrax was good, but it was overshadowed by that on tuberculin. Other important work by Koch was on methods of bacteriology, laboratory procedures and sterilization. Koch acquired many titles and honors. He was granted the Nobel Peace Prize for 1905-1906. His work made a deep impression on science.

KÖLLIKER'S SMOOTH MUSCLE FIBERS: *Muscular fibers around hair follicle.*

Rudolf Albert V. Kölliker, a German anatomist, was born July 6, 1817. He died in 1905. He studied at Zurich, Bonn, Berlin and Heidelberg. Many teaching positions in physiology, anatomy, microscopy and embryology were held by him. He was honored with the Knighthood of the Order of Merit. Kölliker criticized evolution, and rejected the idea of continuity of the germ plasm. He wrote extensively on microscopic anatomy, embryology and histology. He added to the sum of knowledge on cellular physiology.

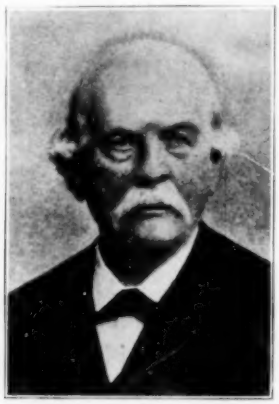

Fig. 17.—Rudolf Albert von Kölliker (after the Collection of the Academy of Medicine, New York).

KOLMER'S TEST: *Wassermann substitute.*

John Albert Kolmer, an American serologist, was born on April 24, 1886. He received his doctor of medicine degree at the University of Pennsylvania, and is a doctor of public health. He is a member of sixteen medical societies, and the author of a great number of articles and several books.

KRAUSE'S CORPUSCLES: *Nerve-endings.*

Wilhelm Krause, a German anatomist, was born in 1833, and died in 1910. He was the son of K. F. th. Krause (1797-1868). Krause studied studied at Göttingen, Berlin, Vienna and Zurich. He was a professor at Göttingen, and later at Berlin. He wrote more than 300 articles in journals and books on anatomic investigations as well as clinical studies.

KRISOWSKI'S SIGN: *Radiating lines of scars about the mouth from congenital syphilis.*

M. Krisowski wrote "Ueber ein bisher wenig beachtetes Symptom der hereditaren Lues," *Berliner klinische Wochenschrift,* 1895, no. 41.

KROMAYER FIBERS: *Intercellular bridges of prickle cells.*

KROMAYER LAMP: *Water cooled model of mercury vapor arc in quartz.*

Ernst Kromayer was a German dermatologist.

KROMPECHER'S TUMOR: *Rodent ulcer.*

Edmund Krompecher, a Hungarian pathologist, was born in 1870.

KUMERFIELD'S WASH.

Camphor	½	drachm
Acacia	1	drachm
Precipitated sulphur	6	ounces
Solution of calcium hydroxide		
Rose water ..... of each	3	drachms

A mixture is made for the lotion.

LANDOLFI'S MIXTURE: *For extended forms of lupus.*

LANDOLFI'S PASTE: *Concentrated muriatic acid and pulverized glycyrrhizae, equal parts made into a paste.*

LANDOUZY'S PURPURA: *Purpura with grave systemic symptom.*

LANDOUZY'S DISEASE: *Weil's disease.*

LANDOUZY'S ISCHALGIA: *Neuralgia of sciatic nerve.*

LANDOUZY'S DEJERINE TYPE: *Progressive muscular atrophy.*

Louis Landouzy, a French physician, was born on March, 27, 1845. He died in 1917. He wrote "Lecons clin. sur les Teignes," 1878.

LANG'S GRAY OIL: *Oleum cinereum.*

Edward Lang, a Viennese physician, was born in 1841. He studied under Bruckes and Billroth. He was a professor of dermatology and syphilology at Innsbruck in 1873. He wrote numerous special articles in various journals devoted to his specialty, and also "Pathologie und Therapie der Syphilis," 1884, third edition, 1896.

LYMPHANGITIS OF LANG: *Indurated lymphatic vessel of dorsum of penis with chancre of glans penis.*

LANGE'S GOLD TEST: *Spinal fluid colloidal chemistry.*

Carl Lange, a German, was born in 1883.

LANGERHANS CELLS: *Star shaped cells in the deeper portions of the germinating layer of the epidermis.*

LANGERHANS BODIES.

LANGERHANS LAYER: *Deep cellular layer of chorionic villi.*

LANGERHANS STELLAR CORPUSCLES.

Ernest Robert Langerhans, a German histologist, was born in 1847, and died in 1888.

LANGERHANS ISLANDS: *Of pancreas.*

Paul Langerhans wrote a "Berlin Dissertation" in 1869.

LANGHANS GIANT CELLS.

LANGHANS CELLS: *Make up* **LANGHANS LAYER** *in stratum granulosum.*

Theodore Langhans, a German, was born Sept. 28, 1839. He was educated under Henle, Recklinghausen and Mueller. He went to Göttingen, Berlin and Wurzberg, and settled in Marburg in 1868. He became a professor of pathologic anatomy at Giessen and at Bern. Langhans made numerous investigations which were published in *Virchow's Archiv für pathologische Anatomie und Physiologie und für klinische Medicin.* He died in 1915.

LASSAR'S PASTE.

Oscar E. Lassar, a German dermatologist, was born Jan. 11, 1849. He studied at Hamburg, Heidelberg, Strassburg, Wurzberg and Berlin. He saw army service in 1870-1871. Lassar studied physiology and

Fig. 18.—Oskar Lassar (after Pagel).

wrote a thesis on "Manometre der Lungen." He became an assistant to Julius Cohnheim in pathology in 1878. Under Hebra he became interested in skin diseases. In his private clinic, he saw some 12,000 persons whom he used as teaching material. Lassar founded the Berlin Dermatologic Society in 1886. He was interested in hygiene. He became an assistant to Robert Koch. In the hydrotherapeutic movement abroad, Lasser was a leader, ranking with Simon Baruch of the United States. He made many literary efforts along various lines, in addition to his advances in dermatology and syphilolgy. He died in 1908.

LEISHMAN-DONOVAN BODIES.

Sir William Leishman was a British surgeon, born in 1865. In a postmortem film of a case of fever at Dum Dum, near Calcutta, in May, 1903, he described a possible trypanosome. He worked with Wright on prophylaxis of typhoid fever. He was professor of pathology at the Royal Army Medical College. His work was on spirochetes, trypanosomes, Leishman-Donovan bodies, immunology and bacteriology. He died in 1926.

LEVADITI'S METHOD: *For staining Spirochaeta pallida in tissue.*

Constantin Levaditi was a French authority.

LISTER'S PASTE.

Phenol	1 drachm
Linseed oil	2 drachms
White chalk sufficient to make a soft paste.	

Baron Joseph Lister was born April 5, 1827. He lived in London among Quakers, and had a leaning toward science. He received his bachelor's degree in 1847. Like his father he had intense interest in the microscope. In 1852 he received his degree in medicine. He studied at Edinburgh for surgery. Lister made his own drawings. He became a professor at Glasgow University College Hospital. He was a Fellow

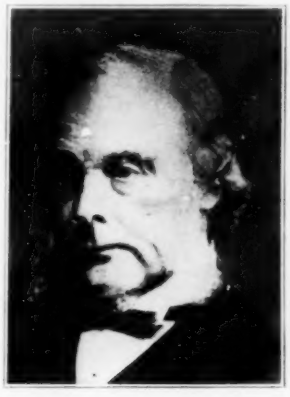

Fig. 19.—Lord Lister (after the Collection of the Academy of Medicine, New York).

of the Royal College of Surgeons, and had a surgical service at King's College, London, but did not give up his investigations in anatomy, histology, physiology and pathology. Numerous papers were published by him. He became world famous by reason of his Lister antisepsis published in *Lancet* in 1867, entitled "On a New Method of Treating Compound Fractures, Abscess, etc., with Observations on the Condition of Suppuration." Lister had studied the principles some six years, and had taken advantage of his knowledge of the fields in associated sciences. He ended the era of "laudable pus." Many honors and titles befell him, as well as medical recognition the world over. He died in 1912.

LOEFFLER'S METHYLENE BLUE STAIN.

Friedrich August Johannes Loeffler, a German bacteriologist, was born June 24, 1852, and died in 1915. He studied at Frankfurt on the

Oder. He was the son of an army surgeon, G. F. F. Loeffler. Loeffler was educated at Wurzburg, Zogling and Berlin. He saw military service. He made researches in chemistry and hygiene, worked in the laboratory, was given a teaching position connected with his army services, and had a place on many commissions on hygiene. Loeffler made unusual advances in bacteriology and immunity.

Fig. 20.—F. A. J. Loeffler (after Pagel).

LUGOL'S SOLUTION OF IODINE.

J. G. A. Lugol was a French physician, born Aug. 10, 1786, and died Sept. 16, 1851. He studied at Paris, and received his degree in medicine in 1812. He was interested in internal medicine. He was physician to the Hospital St. Louis. Lugol treated scrofulosis with the iodine and iodide solution named after him.

LUSTGARTEN'S BACILLUS OF SYPHILIS.

Sigmund Lustgarten, an Austrian dermatologist, was born in 1857, and died in 1911. Mistaken in his ideas, he was indirectly responsible for the discovery of *Spirochaeta pallida* by the commission investigating his organism, probably only smegma bacillus.

MAL DE LA BAIE DE ST. PAUL: *Syphilis.*

RETE MALPHIGHI.

Marcello Malphighi, an Italian anatomist and microscopist, was born March 10, 1628, and died Nov. 29, 1694. He traveled extensively to acquire knowledge, and is the actual founder of histology. He was physician to Pope Innocent XII (1691-1694). Malphighi was likewise famed as a biologist for his work on the anatomy of the silkworm, and the morphology of plants. He made epochal studies in the embryology of the chick, and histology and physiology of the glands of the viscera, and was the first to describe accurately the structure of the skin. He discovered the sebaceous glands. Malphighi far surpassed his con-

temporaries in these fields. The red blood cell was described by him in 1665. The rete mucosum is the rete Malphighi. He described the papillae as taste organs of the tongue, and discovered the capillaries. He did work on the kidney and the spleen. Hodgkin's discovery of the syndrome accredited as Hodgkin's disease was probably antedated by him.

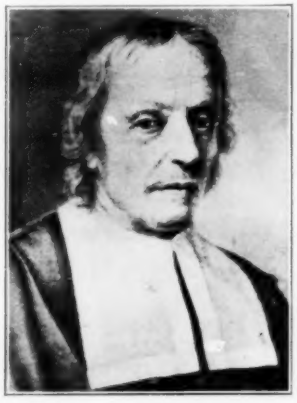

Figure 21

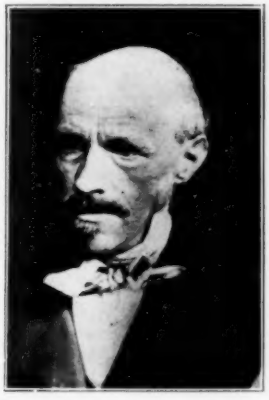

Figure 22

Fig. 21.—Marcello Malphigi (after the Collection of the Academy of Medicine, New York).

Fig. 22.—George Meissner (after the Collection of the Academy of Medicine, New York).

MANARDUS' LUPUS: *First use of the term lupus was in 1528, but for ulcer of the leg.*

Giovanni Manardus was born July 24, 1462, and died May 8, 1536. He was a student at Ferrara, and later worked in osteology and was a physician to princes and kings. In addition to being the most learned physician of his time, he was a keen student of natural history. He was opposed to authority and astrology in medicine, as well as the Arabic influence. His writings were extensive, including "Epistolae Medic-Lutetrae," 1528.

MEISSNER'S CORPUSCLES: *108 of 400 papillae with tactile corpuscles were found on the last phalanx of the finger in a square line, while there were only forty on the second phalanx, fifteen on the third and eight on the palm.*

George Meissner, a German histologist, was born Nov. 29, 1829, and died in 1903. He studied at Göttingen, Berlin and Munich. He investigated physiology and anatomy under Langenbeck, R. Wagner, J. Mueller and C. V. Silbold. Meissner held a professorship in 1855. The plexus in the intestines known as the Plexus of Meissner was his discovery. He wrote "Beitrage zur Anatomie und Physiologie der Haut" in 1853, and made many other contributions on scientific subjects.

MERCURIALIS' CLASSIFICATION: *Following Galen's example, he divided eruptions into those of the head and those of the rest of the body.*

Hieronymus Mercurialis was born Sept. 30, 1530. He died in 1606. He was a famous medical man of this learned period and was devoted to the study of medicine of the antiquity. Nothing original was added by him. He wrote, "De Morbis cutaneis et omnibus corporis humani excrementis, Libre V," which was published in 1571 and reached his students in 1572.

MERKEL'S TOUCH CELLS.

Friedrich Siegmund Merkel was born April 5, 1845. He was a pupil of Henle, and became professor of anatomy and director of the Anatomic Institute at Rostock in 1872. He also was at Königsberg and Göttingen. Merkel contributed to the knowledge of the eye, muscles and spermatoza, and likewise wrote "Ueber die Endigungen der sensibilen Nerven in der Haut," 1880.

Figure 23

Figure 24

Fig. 23.—Friederich Merkel (after Anatomische Hefte).
Fig. 24.—Elie Metchnikoff (after Garrison).

METCHNIKOFF'S OINTMENT: *For prophylaxis.*

Elie Metchnikoff, an eminent Russian biologist, was born in 1845 and died in 1916. His discovery of the phagocytes and phagocytosis in 1884 meant the opening of natural history into applied medicine. The doctrine of inflammation, as given by Metchnikoff, led to vaccinotherapy, and the present ideas as to bacteriolysis. Metchnikoff inoculated apes with syphilis. His opinions on prolongation of life with lactic acid bacilli excited worldwide comment. He received the Nobel Prize for 1908.

Madame Metchnikoff wrote a revealing study of her husband. He was a lover of music, an art student and an esthetic person. The work he did was not accepted at once, and he felt this keenly. One of his books is "Lecons sur la Pathologie."

MIKULICZ'S CELLS: *Rhinoscleroma.*

MIKULICZ'S DISEASE: *Enlargement of lacrimal and salivary glands.*

MIKULICZ'S DRAIN: *Method of draining abdominal cavity after operation.*

MIKULICZ'S MASK: *For operating surgeon.*

MIKULICZ'S OPERATION: *For torticollis.*

MIKULICZ'S OPERATION: *Tarsectomy.*

MIKULICZ'S TWO TIME OPERATION: *For resection of intestine.*

Johann von Radecki Mikulicz was a Polish surgeon, who was born May 16, 1850, and died in 1905. He studied under Billroth in 1881, and had the chair in surgery at Breslau in 1890. He was an early adherent to the new antiseptic surgery. Many papers were written by him, as "Atlas der Krankheiten der Mund und Rochenhohle," 1892, Berlin, and "Diseases of the Mouth," (part of Twentieth Century Prac-

Fig. 25.—Johann Mikulicz (after the Collection of the Academy of Medicine, New York).

tice) 1896. He made advances in surgery of the esophagus and the stomach. Mikulicz was one of the first to introduce cotton gloves superseded by those of rubber of Halsted.

GLANDS OF MOLL: *Occur in the lids modified in shape. A spiral shape arrangement is found instead of the coil. The glands empty into hair follicles instead of upon the surface.*

M. F. von Moll was a Dutch physician, born Nov. 25, 1849 in Rotterdam. He was a military surgeon. He studied the eye at London, Paris and Vienna, and practiced at Rotterdam where he had his own hospital. He wrote extensively on the eye and its diseases.

MONTGOMERY GLANDS: *Peri-areolar glands.*

William F. Montgomery was an Irish physician, born in 1797. He died in 1859 of agina pectoris. He graduated in medicine from Dublin

in 1825. He was a Licentate at King's and Queen's College, a Fellow in 1829 and a famous obstetrician. The chair in midwifery at the College of Physicians was founded by him. He wrote on "Exposition of Signs and Symptoms of Pregnancy" in 1837; second edition 1856; German edition, 1859.

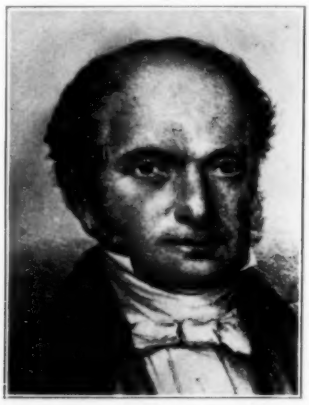

Fig. 26.—William F. Montgomery (after "Pregnancy").

MORRIS' MOLARS: *First molar in congenital syphilis is reduced in size and dome-shaped because of dwarfing of the central tubercle of each cusp.*

Henry Morris, an English surgeon, was born Jan. 7, 1844, at Sussex. He was a graduate of Guy's Hospital and a resident there. He practiced surgery in London after 1870, and was surgical registrar at Middlesex Hospital. From 1871 to 1881 he taught anatomy. He wrote numerous papers on anatomy, joint surgery, tongue cancer, etc.

MOST'S ASTRINGENT BATH: *For extensive burns—200 Gm. of alum to six or eight pails of cold water and one pail of curdled milk.*

NIKOLSKY'S SIGN: *Excessive sensibility of the skin with loss of superficial layer on receipt of slight injury.*

Pegotyr Vaselywich Nikolsky was a Russian, born in 1855.

NESBET'S CHANCRES: *Nodular abscesses on the penis following acute lymphangitis from soft chancre.*

William Nesbet, an English surgeon, was born in 1759, and died in 1822. He was a graduate of Edinburgh, and a Fellow of the Royal College of Surgeons. He was interested in internal medicine, venereal diseases, syphilis and cancer, among other things. Nesbet wrote on diseases of infancy and childhood, as well as on midwifery. He also wrote a "General Dictionary of Chemistry," and a treatise on "First Lines of Theory and Practice of Venereal Diseases"; French translation, 1788; German translation, 1789.

NOGUCHI'S LUETIN REACTION: *Skin reaction for syphilis (1911).*

Hideyo Noguchi, a Japanese bacteriologist working from the Rockefeller Institute for Medical Research, was born Nov. 24, 1876. He is a graduate of the Tokyo Medical College, 1897, and has degrees from the University of Pennsylvania, 1902, and the University of Copenhagen, 1906. He has made many advances, as culturing the inclusion bodies of Negri, 1913; modification of Wassermann reaction, 1909; the luetin reaction, and work on snake venom. He has had many honors heaped on him, and medals bestowed, as well as titles.

OEHL PELLUCIDUM: *Stratum lucidum.*

Eusebo Oehl, an Italian anatomist, was born Dec. 5, 1827, and died in 1903. He studied at Pavia and Vienna, and made a tour of Germany, Austria, France and England. He became a professor of histology at Pavia in 1864. Unna published his studies on histologic anatomy of the skin.

PACINIAN CORPUSCLES.

Filippo Pacini was born on May 4, 1812. He had an early leaning to natural sciences. At the age of 18 he began his anatomic studies, and at the age of 23, had discovered and demonstrated the corpuscles which bear his name. Pacini overcame many difficulties in his advances. He made many efforts at microscopic studies of the eye; investigated the electrical reactions of the electrical fish, and studied cholera. He was honored abroad. He has innumerable written expressions in Von Cantani's "Lexikon." Pacini was interested in legal medicine, also. He died July 9, 1883.

PAQUELIN CAUTERY.

Claude Andre Paquelin was a French surgeon. He lived from 1836 to 1905.

PARROT'S SIGN: *Bony nodes on outer table of skull in congenital syphilis.*

Marie Jules Parrot was the son of a physician, and was born Nov. 1, 1839. He studied at the Polytechnic School in Paris, but later transferred his studies to medicine. He won a prize on "Considerations sur la Zone" in 1856, and also wrote "Propositions de Medicin," 1860. He followed Lorain as a professor of History of Medicine, and later was a professor of pediatrics. He was a member of the Academy of Medicine. Parrot's clinical work gained for him the reputation of being a wonderful pediatrician. The world knows him for his work in rickets and syphilis.

He died in August, 1883.

PEARSON'S SOLUTION: *One grain of the arseniate of soda to the ounce of distilled water of which 15 drops are given three times daily, in psoriasis.*

George Pearson was an English physician, born in 1751. He died in 1828 as the result of a fall down stairs. He studied at Edinburgh, Ley-

den and London. He practiced at Donchester, then at London, and was physician to St. George's Hospital in 1787. He became a Fellow of the Royal Society. Pearson was a popular lecturer on chemistry, and materia medica. He was interested in vaccination, and corresponded with Jenner; yet he opposed the prize to Jenner offered by the House of Commons in 1812.

PLENCK'S SYSTEM: *Divided skin into fourteen classes with especial reference to the forms of pathologic product.*

Joseph Jacob von Plenck was born in Vienna on Nov. 28, either 1732 or 1738. He died in 1807. He followed the method of Linneus in classifying the diseases of the skin in 1776. His book, "Doctrina de Morbis Cutaneis" appeared first in 1776, and the second edition in 1783. Plenck taught obstetrics for a time, but wrote on all branches of medicine. It must have been impossible for him to limit himself to any one topic. Of his many titles, the following will indicate the fields in which he delved: medicine, surgery, skin, ophthalmology, obstetrics, toxicology, pathology, pediatrics and midwifery. In fact, Plenck gave up the practice of medicine to devote himself to writing. He proposed many formulas for therapy.

PLINY'S MENTAGRA: *Facial lesions spread by kiss.*

Pliny, the Elder, was born in 23 A.D., and died in 79 A.D. His full name was Cajus Plinius Secundus Plinius, called the Elder. He made a vast compilation dealing in part with medicine. He gave many side lights on Roman physicians, and made many original references. The books of Pliny numbered some 2,000; most of these have been lost. In his "Natural History," Pliny considered that disease might be transferred from one body to another. Few of Pliny's therapeutic suggestions show any pharmacologic sense. It so happens that a pseudo Pliny was published which was based on Pliny and others. Later, Pliny's errors in botany were corrected by Nicola Leoniseno (1428-1524). Pliny the Elder traveled in Germany and Spain. He died in a Vesuvius outbreak, which he went to study. Pliny believed in progress

PRIESSNITZ'S CURE: *For psoriasis.*

Vincenz Priessnitz, a German "healer," was born Oct. 4, 1790, and died Nov. 28, 1857. He was a farmer who discovered for himself the efficacy of water, and so-called natural methods of utilizing water, air and outdoors. He began at the age of 15, and was called into consultation by his neighbors when only 19 years old. The institution he founded received state recognition in 1829.

PROFETA'S LAW: *Apparently healthy children of syphilitic persons possess an apparent immunity to syphilis.*

Gaisippe Profeta was an Italian.

PURKINJE'S GLANDS: *Sudoriforous glands.*

Johannes Evangelista Purkinje was a Bohemian anatomist, physiologist, pharmacologist and physician. He was born Dec. 17, 1787, and died July 28, 1850.

He began the study of medicine at Prague at the age of 21. He was a friend of Goethe. Purkinje really was a pioneer in microscopy. He first sought courses leading to teaching as a career, and then began the study of medicine. After his medical course, he taught under Rottenberger and Seg in anatomy and physiology. He was professor at Breslau in physiology and pathology for twenty-six years. The Physiologic Institute was founded by him. He pointed out the importance of finger prints. He had a private laboratory, and studied the anatomy of the skin. Thus, he discovered the sudiferous glands and their ducts. He was the first to use a microtome, and was a forerunner of the moderns.

Fig. 27.—J. E. Purkinje (after Pagel).

PUSEY'S LINIMENT.

PUSEY'S METHOD: *Pusey's Snow.*

William Allen Pusey, is an American dermatologist, practicing at Chicago, an emeritus professor, a former treasurer and president of the American Medical Association, Editor in Chief of the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY. He is a leader in the field of physiotherapy in dermatology; was one of the first, if not the first, to use the roentgen ray, and proposed carbon dioxide snow for skin lesions. He is the author of several books, of which there have been a number of editions. A clever after dinner speaker, he is much sought for lectures.

RANVIER'S TACTILE DISK: *Nerve-endings consisting of small cup-shaped bodies, the concave side of which is directed toward the free surface of the epidermis.*

Louis Antoine Ranvier, the French histologist, was born Oct. 2, 1835. He had a professorship, did much laboratory work and wrote several books on his specialty. He made many investigations of histology of the nervous system.

RAUBER'S LAYER: *Layer of polygonal nucleated cells in the development of human epidermis.*

August Antinous Rauber was a German anatomist who was born March 22, 1841. He studied under Bischoff and Ruedinger. He taught at Boul and Leipzig, and was a professor and director of anatomy at Dorpat. He made many studies in anatomy, wrote several books and gave much consideration to the historical views of man.

RAVOGLI'S LINIMENT.

	Gm. or cc.
Phenol	1
Glycerin	2
90 per cent alcohol	16
Rose water sufficient to make	32

Augustus Ravogli was born in Rome Feb. 7, 1857. He came to America in 1881 and has been a professor of dermatology. He has made many studies in clinical dermatology and wrote an excellent review of the historical aspects of the specialty, which has been published in part in *Medical Life*. Ravogli saw military service for Italy. He was knighted. He is a kindly man, who is keenly interested, and still active in practice.

Fig. 28.—Robert Remak (after Pagel).

REMAK'S SKIN PLATE: *In fetal life there is a layer from which the corneum develops, consisting of round or spindle shaped cells.*

Robert Remak, a German anatomist, was born July 26, 1815. He died Aug. 29, 1865. He was a leader in the field of microscopy. He studied at Berlin under Johann Mueller, and was an assistant of Schoenlein at Charite. He worked in the fields of embryology, pathology and histology. Remak was the first Jewish Privatdozent in Prussia at Berlin University, and was a professor in 1865. He made his mark in three fields of endeavor: microscopic anatomy of nerves; cell structure of the embryo, and electrotherapy, in which he was a pioneer. He wrote numerous papers, articles, etc. Favus was produced by him experimentally, and he named the organism *Achorian schoenleinii*.

Remak discovered the axis cylinder. He made particularly interesting studies of the embryology of the human skin.

REVAUT'S LAYER: *Thin membrane separating derma from epidermis.*

Joseph Louis Revaut, a Frenchman, was born in 1844.

RICORD'S CHANCRES: *Parchment-like primary lesion of syphilis.*

Philippe Ricord was born in Baltimore, Md., of French parents, on Dec. 10, 1800. He graduated at Paris in 1820, studied under Dupuytren, Lesfrone and others and received his degree in medicine in 1826. He practiced in a small community because of lack of funds, and returned to Paris in 1828. In 1831, he became chief of the syphilitic section of the Pitie Hospital, and later was at the Hopital de Midi, where he became chief of the syphilitic service. He developed the best

Fig. 29.—Philippe Ricord (after Pagel).

practice in Paris. Ricord was a member of the Academy of Medicine in 1850. He was physician to Napoleon in 1850, and consultant to the Kaiser in 1869. Numerous medals and honors, both civilian and medical, were heaped on him. He wrote widely on his specialty, and venereal diseases in general, and was recognized as the greatest authority in these fields after Hunter. He overthrew many false concepts of Hunter by 2,500 inoculations of gonorrhea on the nonmucous surface from 1831-1839. He was the first to divide the manifestations of syphilis into primary and secondary. Ricord's study of the chancre is notable. He died on Nov. 22, 1889.

ROCHARD'S OINTMENT: *Used in psoriasis.*

Jean Felix Rochard was born at Rochefort in 1808. He was a surgeon in the French navy, and served at Madagascar and in the colonies. He wrote of his experiences in the service and in skin diseases, and published many papers and books, such as "Traite de Maladies de la Peau," 1860; and a two volume set in 1868.

ARGYLL-ROBERTSON PUPIL.

Douglas Argyll-Robertson, a Scotch physician, lived from 1837 to 1909.

Figure 30

Figure 31

Fig. 30.—Douglas Argyll-Roberston (after British Medical Journal).

Fig. 31.—Karl Rokitansky (after the Collection of the Academy of Medicine, New York).

ROKITANSKY'S PATHOLOGY.

Karl Rokitansky was a Bohemian, born Feb. 19, 1804. He studied medicine at Prague and Vienna, and became an assistant in pathology in 1828 and later, a professor in pathology anatomy. He was a full professor in 1844. He exercised a great influence on the advance in dermatology by reason of his influence on Hebra. In fact, it was Rokitansky who made Hebra's contributions to dermatology possible. In 1869, Rokitansky became president of Vienna Academy and a year later he was elected to the Paris Academy of Sciences. He, Skoda and Hebra were all pupils and friends of Semmelweiss.

Rokitansky died on July 23, 1878.

ROMBERG'S SIGN: *Swaying of body when standing with feet close together and eyes closed in tabes.*

Moritz Heinrich Romberg was born Nov. 11, 1795. He studied in Berlin. His dissertation was on "Die rhachitide congenita," 1817. He was at Vienna, and later in Berlin. Advances were made by him in

pathology and therapeutics. Romberg was one of the founders of the idea that the sick should be examined. He was a professor of pathology and therapy in 1840. He was a Geheimrat in 1851. The fiftieth anniversary of his activities was cerebrated in 1867. Romberg was interested in neurology, and he wrote the first formal treatise on nerve diseases, an epoch making book. Many articles of his still live. He was a good teacher.

Romberg died on June 16, 1873.

Fig. 32.—M. H. Romberg (after Pagel).

RUSSELL'S BODIES: *Found in carcinomatous or near-carcinomatous lesions of the skin.*

William Russell was a Scotchman.

SACHS-GEORGI REACTION: *Floculation test for syphilis.*

Hans Sachs, a German, was born in 1877.

Walter Georgi, a German, lived from 1889 to 1920.

SABOURAUD'S MEDIUMS: *Dextrose agar for fungi.*

Raymond Sabouraud, born in 1864, works at Paris, limiting his activities to the mycotic diseases of the skin and the scalp. He made many trail blazing studies in the cultural characteristics of the fungi. His published work on mycotic diseases is standard the world over.

SAENGER'S SIGN: *A light reflex of the pupil, which has ceased, returns after a short stay in the dark in cerebral syphilis, but not in tabes.*

Alfred Saenger was a German neurologist, born in 1853.

ST. ANTHONY'S FIRE: *Erysipelas.*

ST. ROCH'S DISEASE: *Bubo.*

ST. SEMENT'S DISEASE: *Syphilis.*

SERGEANT'S WHITE LINE: *Appears on the skin of the abdomen when it is lightly stroked, in Addison's disease, low arterial tension and thyroid states.*

Emil Sergeant was a Frenchman.

SIGMUND'S GLANDS: *Epitrochlear enlargement in syphilis.*

Karl Ludwig Sigmund, Ritter von Donor, an Austrian syphilologist, was born Aug. 27, 1810, and died Feb. 1, 1883. Sigmund became a professor of stomach and eye diseases in 1837; and a professor of medicine in 1841. He travelled at the expense of the state through Germany, France, Belgium and England. In 1842, he had a surgical service and was interested in syphilis, and in 1848 he became a professor. He made a trip to the Orient to study pest and quarantine reform. He wrote on syphilis, balenology, climatology and epidemology. He was

Fig. 33.—K. L. Sigmund (after the Collection of the Academy of Medicine, New York).

honored by a title. Sigmund was recognized as an eminent syphilologist, but he would have found a place in the Hall of Fame of physicians by his other contributions.

SILEX'S SIGNS: *Radial furrows about the mouth and other parts of the face in congenital syphilis.*

SISTO'S SIGN: *Constant crying as a sign of congenital syphilis in infancy.*

Genaro Sisto, a Chilean pediatrician, died in 1923.

STARTIN'S SYRUP: *Tonic.*

James S. Startin was born in London, Aug. 30, 1851. He studied at University College and St. Thomas' Hospital. He became a Fellow of the Royal College of Surgeons, England, in 1876, and was honorary surgeon at St. John's Hospital for Skin Diseases. He was vice president of Willan Society. Startin wrote extensively on clinical and therapeutic division of the skin in diseases. He early utilized electrolysis in skin blemishes. He was an inventor of instruments.

STEINER'S TUMOR: *Synonym for Jeanselme's nodules.*

THIERSCH'S SOLUTION: *For ulcers.*

	Gm. or cc.
Boric acid	5
Salicylic acid	1
Water to	500

Karl Thiersch, a German surgeon, was born on April 20, 1822. He died on April 28, 1895. He studied at Berlin, Vienna and Paris, and received his doctorate in 1850. At Munich, he worked under Stromeyer, who influenced him greatly. He saw service with the army. He became a professor of pathologic anatomy. In 1854, he was professor of surgery at Erlangen, and later at Leipzig. During the Franco-Prussian War he was in the army. His own country honored him. He was well

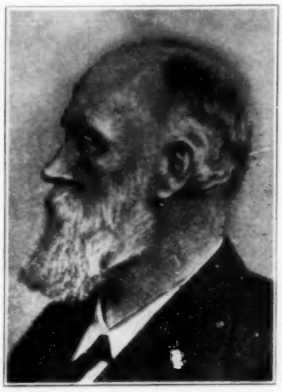

Fig. 34.—Karl Thiersch (after the Collection of the Academy of Medicine, New York).

known for his operations. He modified Lister's method. Numerous contributions were made by Thiersch to works in surgery, antisepsis and skin grafting. He studied epithelial cancer.

TRELOT'S SIGN: *Yellowish spots in the vicinity of tuberculous ulcers of the mouth.*

TRELOT'S SPECULUM: *For rectum.*

Ullysse Trelot was a Frenchman, born Aug. 13, 1828. He died March 28, 1890. He was the son of a physician of the same name (1795-1879). Trelot studied under his father, and also under Roux and Nelaton. He was a surgeon of note. He wrote on surgery, tuberculosis and phosphorus necrosis, and made many studies on the problems of maternity.

TRIMBLE'S MOTTLED CHIN OF SYPHILIS.

William B. Trimble, an American dermatologist, was born in 1870. He graduated in 1891, and for a time was associated with surgery and the surgical departments of hospitals and colleges. He later became chief of the Clinic in Dermatology and Syphilology at the University and Bellevue Medical College, and succeeded J. A. Fordyce when the

latter was called to the College of Physicians and Surgeons. Trimble was attending dermatologist at the New York Skin and Cancer Hospital for many years. His work was carefully done. He always was prepared to speak on matters of dermatologic interest, and was kind to his students and associates. He described the mottled chin of syphilis and many other clinical features of interest. He died during sleep in 1925.

Figure 35

Figure 36

Fig. 35.—W. B. Trimble (after American Dermatological Association portraits).

Fig. 36.—D. Turner (after Annals of Medical History).

TURNER'S CERATE: *Ointment of 20 per cent calamine.*

Daniel Turner was born in 1667, and died March 13, 1740. He was surgeon of London for several years and then took up the study of medicine (1711), an unusual change for that period. Ceratum calaminae was named for him. He wrote on surgery, and his "De morbis cutaneis" of 1714 and 1723 (1766, Germany) was a famous book. He wrote on syphilis in 1724; on gleet in 1729, and on pregnancy in 1730. He made an historical investigation on syphilis, "De morbis gallico," 1730, and wrote on venereal diseases in 1736. John Lane has a nice story of Turner (*Annals of Medical History,* 1919, vol. 4).

TYSON'S GLANDS: *Smegma producing glands.*

Edward Tyson, an English anatomist, was born in 1650, and died in 1708. He was educated at the University of Cambridge (1678), and was a lecturer on anatomy to the Barber Surgeons. He wrote the first monograph on anatomy of lower animals (porpoise, 1680, rattlesnake, 1683) and a comparative morphology. He also wrote a curious book, entitled "Orang Ontand sive Homo sylvestris," 1699.

VAN HARLINGEN'S FORMULA: *For acne rosacea.*

Arthur van Harlingen is a Philadelphia physician. He was born Oct. 25, 1845. He graduated from the University of Pennsylvania in 1867. He has written several handbooks on dermatology and at least one text. In his own city he has been honored by positions of trust in dermatology. Although he is an old man, he retains many of his activities, and has written historical memories of his youth.

VAN SWIETEN'S SPIRITUS ANTI VENEREIS: *½ drachm of mercuric chloride in pint of wine.*

Gerard Van Swieten was a Dutch physician who lived from May 7, 1700, to June 18, 1772. He studied at Lowen under Boerboave. He received his doctor of medicine degree in 1725. In 1736 he taught, but

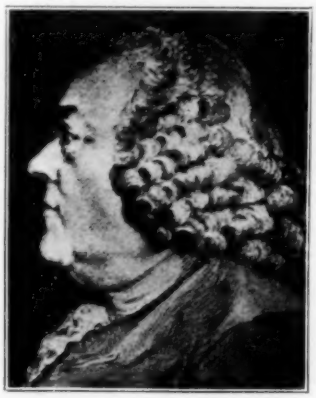

Fig. 37.—Gerhard van Swieten (after the Collection of the Academy of Medicine, New York).

because he was a Roman Catholic he had difficulties in regard to his appointment. In 1745, he was called to Vienna, where he rose to high rank in the teaching circles.

VATER'S CORPUSCLES: *End organs of nerves of sensation in the skin.*

Abraham Vater was born Dec. 9, 1684. He died in 1751. He was the son of a physician (1651-1732). Vater studied at Leipzig, and traveled in Germany, England and Holland. In 1719, he was a professor of anatomy and botany. He founded a museum. Vater wrote mainly on anatomy, but also on botany, chemistry, pharmacology, pathology, therapeutics, surgery, gynecology and state medicine.

VEIEL'S PASTE: *For furunculosis.*

Theodor Veiel, a German dermatologist, was born on March 29, 1848. He was the son of a physician who specialized in dermatology. Veiel studied at Tubingen, Heidelberg and Berlin and in Vienna under

Hebra. Veiel worked with skin diseases, and succeeded his father and brother. He wrote on lupus erythematosus, acne rosacea, eczema, lupus vulgaris and therapy.

VERNES' TEST: *For syphilis of the nervous system.*

A. Vernes is a French physician.

VINCENT'S ANGINA.

VINCENT'S DISEASE.

VINCENT'S BACILLUS.

VINCENT'S SPIRILLUM.

H. Vincent, a French physician, was born in 1862.

Fig. 38.—J. F. Vleminckx (after Archives medicales belges).

VLEMINCKX'S SOLUTION.

Jean Francois Vleminckx, a Belgian physician, was born Nov. 3, 1800, and died March 18, 1876. He studied at Lowen and Paris, and practiced medicine in Brussels. He wrote extensively on ophthalmology. He was sanitary expert to the army until his death. Vleminckx was associate director of the *Archives medicales belges.*

VOIGT'S LINES.

Christian August Voigt was an Austrian anatomist who lived from 1809 to 1890. He was for many years professor of anatomy at the Vienna Anatomical Institute. He published observations on the direction of hair, and the system of lines on the superficial surface of skin of the human, and made other reports in Vienna Academy journals.

WAGNER'S CORPUSCLES: *Corpuscles of Meissner.*

Rudolf Wagner was a physiologist and biologist who lived from July 30, 1805, to May 13, 1864. He was born at Bayreuth, studied at Erlangen, Wurzberg and Paris. He made studies of lower animals, and of anthropology, and cooperated in the call for the First Congress of Anthropology in 1861. Wagner was a professor of zoology, wrote on physiology and pathology and made studies on embryology. He studied the tactile corpuscles with Meissner in 1852. He worked in neurology and psychiatry. The germinal spot was discovered by him in 1835.

WASSERMANN REACTION: *Serologic test for syphilis.*

August Wassermann was born Feb. 21, 1866. He died in 1925. He studied at Strassburg and Berlin. He became an assistant at the Koch Institute, and was a professor of medicine at Charité Clinic. He made

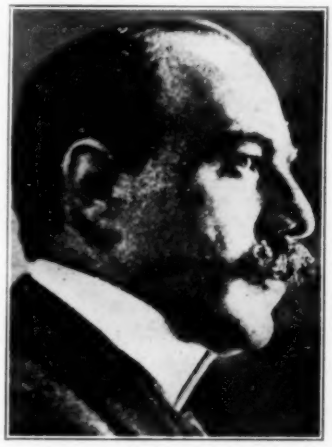

Fig. 39.—August Wassermann (after Social Hygiene Bulletin).

remarkable advances in immunity and serum therapy, and laid the basis for principles of great benefit to modern medicine. His work has clarified the 400 years of clinical syphilology. It is not possible to estimate the aid Wassermann has conferred to mankind.

WEGNER'S SIGN: *Division between epiphysis and diaphysis of long bones in fetal syphilis.*

WEGNER'S DISEASE OF THE BONE: *Fetal syphilitic bones.*

WEGNER'S LINE: *That of separation in congenital syphilitic bone.*

Frederich R. G. Wegner, a German pathologist, was born in 1843.

WERTHEIM'S OINTMENT: *Treatment of chloasma.*

Gustave Wertheim, an Austrian, was born Oct. 28, 1822, and died Jan. 8, 1888. He studied under Rokitansky, Skoda and Hebra. He was professor of dermatology and syphilology in Vienna University, and wrote many articles on his specialty.

WESTPHAL'S SIGN: *Loss of knee jerks in tabes.*

Karl Friederich Otto Westphal, a psychiatrist, was born March 23, 1834, and died Jan. 28, 1895. He was the son of a physician who was a sanitary officer. Westphal studied at Berlin, Heidelberg and Zurich. He spent time in the infectious disease section of the Charité Clinic. He then became interested in psychiatry, and devoted his time to the nerves and their diseases, as well as to mental disease. He made great advances and received numerous honors for his work in neurologic ailments, especially those of the spinal cord, and he wrote fully about his special work.

The sign which bears his name was first described by Westphal in *Archiv für Psychiatrie und Nervenkrankheiten,* Berlin, 1883. It was simultaneously described by Erb (1875).

WHITFIELD'S OINTMENT: *For tinea.*

Arthur Whitfield is an English dermatologist who published a well received article on the treatment of ringworm of the hands and feet. In America, the ointment he names as a preliminary to the therapy has come to be called Whitfield's ointment. It consists of benzoic and salicylic acids in hydrous wool fat (lanolin). Whitfield's book on "Diseases of the Skin" gives a full description of the complete treatment.

WICKHAM'S STRIAE: *Fine lines on surface of Lichen planus papules.*

WILANDER'S METHOD: *Treatment of syphilis with gray ointment smeared in flannel jacket worn by patient.*

Edward Wilander, a Swedish physician, was born in 1846.

WILKINSON'S OINTMENT: *For scabies.*

J. H. Wilkinson was an English physician of the nineteenth century.

WYETH'S METHOD: *Treatment of angiomas by the injection of boiling water.*

John A. Wyeth was born May 26, 1845. He died in 1925. He was a native of Alabama, studied in Louisville and founded the Polyclinic Hospital in New York, the first American institution for postgraduate instruction, in 1882.

ZIEHL-NEILSEN'S METHOD OF STAINING.

Franz Ziehl, a German bacteriologist, was born in 1857.

ZITTMAN'S DECOCTION: *For syphilis.*

Johann Friederich Zittmann was born in 1671, and died May 15, 1757. He was a German physician who held many offices of distinction. He tried hundreds of mixtures of sarsaparilla to make decoctions for the treatment of syphilis.

FUNGI AND FUNGOUS DISEASES

LECTURE II *

ALDO CASTELLANI, C.M.G., M.D.

Fellow of the Royal College of Physicians, London; Professor of Tropical Medicine, Tulane University, New Orleans; Visiting Lecturer, London School of Hygiene and Tropical Medicine and University of Porto Rico; Director of Tropical Medicine and Dermatology, Ross Institute, London; Emeritus Professor of Tropical Medicine, Ceylon Medical School

NEW ORLEANS

FUNGOUS DISEASES

Fungi in Relation to Plant Pathology—Economic Importance of Fungi—Fungi as Agents of Disease in Man—Some Internal Mycoses: Thrush, Stomatitis Cryptococcus-Bacillaris, Tonsillomycoses, Bronchomycoses, Mycotic Conditions of the Nervous System and Organs of Special Sense, Urethromycoses, Mycotic Vaginites.

In the first lecture, I called attention, in passing, to the beneficial rôle played by certain fungi in nature, and to the beneficent functions which they may perform. On the other hand, there are numerous fungi that are capable of doing an enormous amount of evil. One has only to remember the numerous plant epidemics which have taken place in many countries, especially in tropical and subtropical zones.

Plants of great economic importance are often attacked by fungous diseases. The whole subject is of paramount importance. Wheat, cotton and various kinds of fruit in this country; bananas in Central America; coffee and tea in many tropical countries; rubber in Ceylon, Malay and Java; cocoa in the West Indies and in the Gold Coast, all represent interests of the greatest magnitude and great importance to the prosperity of the producing country. The following taken from the "Plant Disease Survey of the United States" in 1919, shows the tremendous loss of value caused by fungous plant diseases:

"Amongst the five leading cereals, 482,695,000 bushels were destroyed by such diseases. Potatoes, 86,997,000 bushels; sweet potatoes, 58,841,000 bushels; that is to say, more than half the crop." It is said that this country could have doubled its supply of oats to the Allies in 1917 had it not been for the losses induced by oat-smut.

These fungous diseases spread from plant to plant with extreme rapidity. I will quote an example from a country in which I lived for some years, namely, Ceylon. When I went to that beautiful island in 1903, there was not a single coffee plantation, but only a few years

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* The Adolph Gehrmann Lectures of the University of Illinois College of Medicine, 1926.

previously hundreds of large coffee estates were in existence. In fact, the coffee industry was the most prosperous in the island. Suddenly, a fungus (*Hemileia vastatrix*) began attacking the coffee plants. The epidemic spread like wild fire, and within four or five years all coffee plantations had to be abandoned, this entailing untold losses to planters and, indirectly, to the whole population of the island.

It is interesting to note that certain insects play an important rôle in the transmission of fungous diseases of plants. The insect in sucking or biting the tissues of the diseased plant comes into contact with spores, some of which adhere, while it passes to another plant, which may thus become infected. Long before the rôle of insects was scientifically established, practical cultivators for many years had noticed that fungous diseases may follow particular insects. For instance, they had noticed that the fungous disease of apple trees, the so-called "canker" caused by a fungus of the genus *Nectria* (*Nectria galligena*), often follows the wake of the woolly aphis, a serious insect pest of apple trees. The insect carries the spores of the fungus entangled in its woolly appendages. The insect punctures the bark, thereby creating wounds through which the fungus can invade the branches.

There is a serious disease of rubber in the Federated Malay States which is caused by the combined action of a fungus and an insect. The insect is a boring beetle; the fungus belongs to *Ustalina*. Both the beetle and the fungus usually live in dead wood, but under certain circumstances, the beetle invades the bark of living rubber trees, carrying with it the fungus which becomes established in the tissues of the rubber trees and acts as a destructive parasite.

Fungi as Causative Agents of Disease in the Lower Animals

Although in animals, epidemics of fungous origin comparable to the epidemics in plants do not occur, there are a number of serious fungous diseases. I may mention actinomycosis in cattle, and the various trichophytic conditions in horses, dogs, birds and rats; these diseases may also attack human beings.

This emphasizes the importance of comparative pathology. By comparative pathology is generally understood the comparative study of the diseases of the lower animals and of man. I take this opportunity to bring forward again the suggestion I made some time ago, that comparative pathology should include not only diseases of man and animals, but diseases of plants. There is little doubt that certain fungi — *aspergilli, nocardias,* etc. — may affect plants, the lower animals and man, and that certain vegetal parasites of man may live a parasitic or saprophytic life on plants. Recent researches have also shown that certain flagellates of plants are capable, experimentally, of causing disease in animals. It is also interesting to see how certain epidemics of plants behave in exactly the same manner as epidemics of

men and animals. Both in animals and in plants, the balance between host, parasite and environment in the causation of epidemic disease is usually of a delicate nature. A slight change in environmental conditions which may favor the host or, alternatively, injure the parasite may be sufficient to prevent the establishment of an epidemic.

Fungi as Agents of Disease in Man

Fungi may attack any organ and system of the human body, the integumentary system being the most frequently, and the nervous system the most rarely, affected. Diseases of fungous origin are called mycoses. These may be classified into two large groups: internal mycoses and external mycoses, or dermatomycoses. It would be impossible in a limited time to discuss seriatim the numerous mycotic conditions of the various systems. I will only touch on a few internal mycoses in the present lecture, and on some external mycoses in the

Etiology of Thrush

Fungi	Fungi imperfecti	Oösporaceae	Genus Monilia Persoon
			Genus Oidium Link
		Hemisporales	Genus Hemispora Vuillemin
	Ascomycetes	Saccharomycetaceae	Genus Saccharomyces Meyen
			Genus Willia Hansen
		Endomycetaceae	Genus Endomyces Rees

next lecture. I will discuss briefly the following internal mycoses: thrush, tonsillomycoses, bronchomycoses, certain mycotic conditions of the nervous system and organs of special sense, and certain mycoses of the genito-urinary system.

THRUSH

All textbooks state that thrush is caused by *Oidium albicans* Robin (synonyms: *Monilia albicans, Saccharomyces albicans, Endomyces albicans*), but different descriptions of the organism have been given. Some authorities describe it as not liquefying gelatin, others as liquefying this medium. Some observers have stated that the organism clots milk, others that it does not have any action on this medium. These different descriptions merely mean, as I noted some years ago, that there is a plurality of species of the thrush fungus. Since 1906, in a series of researches carried out in tropical countries and in the temperate zone, I have endeavored to demonstrate that thrush may be caused by different fungi, and that in reality the term "thrush" does not cover one condition only, but a group of clinically similar conditions due to different fungi.

Fungi Found in Thrush.—The fungi I have so far isolated from cases of thrush, in the tropics and in temperate climates, may be classified as follows:

(*a*) *Fungi imperfecti.*
Family *Oösporaceae* Saccardo:
Genus *Monilia* Persoon.
Genus *Oidium* Link.
Order *Hemisporales* Vuillemin:
Genus *Hemispora* Vuillemin.

(*b*) *Ascomycetes.*
Family *Saccharomycetaceae* Rees:
Genus *Saccharomyces* Meyen.
Genus *Willia* Hansen.
Family *Endomycetaceae* Rees:
Genus *Endomyces* Rees.

Fungi of Genus Monilia Persoon.—These are the fungi most commonly found in thrush. The botanic description of these fungi has been given in my first lecture. It suffices to say here that the genus *Monilia* as understood today by medical mycologists, Pinoy and others, does not correspond to the original genus *Monilia* as defined by Persoon in 1797. "Stipitata aut effusa byssoidea, Fila moniliformis articulata," nor to the definition of Saccardo and other botanists, who state that these fungi are characterized by the sporophores being simple or subsimple, and that they produce, by constriction at the extremities, a chain or large lemon-shaped conidia, often provided with a disjunction apparatus. The tendency in recent years has been to extend the term *Monilia* to all yeastlike fungi which possess a certain amount of mycelium and never show ascus formation. In the lesions the vegetal body (thallus) is composed of mycelial threads of rather large size, often showing arthrospores, and numerous free oval or roundish budding yeastlike forms; in cultures, especially on solid mediums, mostly roundish or oval budding elements are seen, while mycelial filaments are scarce or absent. These fungi, as a rule, ferment with production of gas, dextrose and often other sugars. For the classification of *Monilias* reference should be made to my first lecture. The commonest species found in thrush are *M. pinoyi, M. metalondinensis* and *M. tropicalis.*

Fungi of Genus Oidium Link, *emendavit* Pinoy.—This genus is closely allied morphologically to *Monilia,* but mycelial threads and mycelial spores are abundant both in the lesions and in cultures, while true budding, yeastlike cells are absent. Fungi of this genus may occasionally induce an acid fermentation, but they do not produce gas in any carbohydrate. I have found fungi of this genus in certain cases of thrush in the tropics and in the Balkans. I have isolated three species: *Oidium matalense* Castellani, *O. asteroides* Castellani and

O. rotundatum Castellani. It is interesting to note that I have found the same species in cases of mycotic tonsillitis, and in the expectoration in certain cases of bronchitis, while I have observed *O. rotundatum* and *O. asteroides* also in the stools in certain cases of enteritis and also in the stools of apparently healthy persons. I have briefly described these fungi in lecture 1; a more complete description may be found in previous publications of mine as well as in Castellani and Chalmers' "Manual of Tropical Medicine." [1]

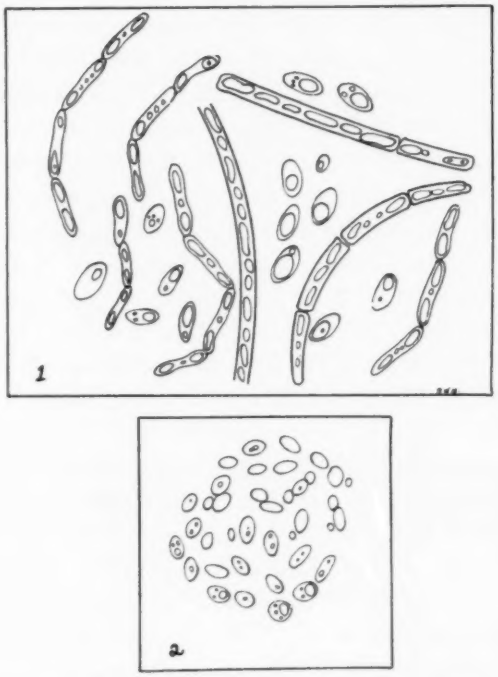

Fig. 1.—Monilia tropicalis from a case of thrush: (1) appearance of the fungus in the thrush patches; (2) appearance of the fungus in cultures on solid mediums.

Fungi of Genus Hemispora Vuillemin.—These fungi are characterized by the presence of abundant mycelial hyphae, some of which are conidiophores. Each conidiophore terminates into an ampulliform or sausage-like structure, which is called protoconidium and which later divides into several sporelike segments or deuteroconidia. So far, only one species of this genus has been found in cases of thrush—*Hemispora rugosa* Castellani. This fungus was first isolated by me from a case of mycotic tonsillitis in 1910, and it was observed by Pijper in

1. Castellani, Aldo, and Chalmers, A. J.: Manual of Tropical Medicine, ed. 3, New York, William Wood & Co., 1920.

1915 in a case of thrush. Two varieties can be distinguished; one liquefies gelatin; the other does not have any such action on the medium. Brief botanic details of this fungus have been given in the first lecture.

Fungus of Genus Willia Hansen.—These fungi are characterized by the peculiar bowler hat shape of their ascospores. I isolated a fungus belonging to this genus from a case of thrush in a gipsy in Macedonia. In sugar broths it formed a thick pellicle which contained air bubbles. It produced gas in dextrose and levulose only. Old cultures on solid mediums contained asci with from two to four spores of the peculiar hatlike appearance. The fungus seemed to be somewhat similar to *Willia anomala* Hansen, but the investigation of it is not yet complete.

Fungi of Genus Cryptococcus Kützing.—These fungi may occasionally cause thrush; they are identical to *Saccharomyces,* but asci are never found.

Fungi of Genus Endomyces Link.—The fungi, on superficial examination, are extremely similar to those of the genus *Monilia,* budding elements and mycelial threads being found in the lesions, and mostly budding elements in cultures. There is, however, an important character that differentiates these fungi: in old cultures of endomyces asci are present. Only once have I come across a case of thrush due to a true endomyces, in Macedonia in 1917. I considered it to be *E. vuillemini* Landrieu.

Fungi of Genus Saccharomyces Meyer.—In the Balkans I found a case of thrush due to a typical saccharomyces, which I have only recently studied. Fungi of this genus are characterized by the vegetative body consisting only of budding elements, and by the presence of asci in cultures. The saccharomyces isolated by me ferments, with the production of gas, dextrose, levulose, galactose, maltose and saccharose. It does not clot milk, which, however, may occasionally become acid. Gelatin and serum are not liquefied.

Clinical Varieties of Thrush Caused by Foregoing Fungi.—I have always endeavored to study the cases of thrush I have observed both mycologically and clinically, to see whether different groups of fungi are causing different types of thrush. In my experience two principal varieties of thrush may be distinguished: (1) the white type by far the most common—characterized by the cream white color of the patches, and practically the only type of thrush found in temperate zones; (2) the yellow, or yellow-brownish type—characterized by the yellowish, occasionally brownish color of the patches. The first type may be caused by various species of the genus *Monilia* (except *M. zeylanica* Castellani and *M. zeylanoides* Castellani), by *Oidium matalense* Castellani, by *Endomyces vuillemini* Landrieu and by fungi of the genera

Saccharomyces Meyen and *Willia* Hansen. The second type is caused by *Hemispora rugosa* Castellani, and occasionally by *M. zeylanica* Castellani and *Oidium rotundatum* Castellani.

Conclusion.—Thrush is not caused by one species of fungus only, the so-called thrush fungus, or *Oidium albicans* Robin, as generally stated. It is caused by a number of different fungi, some of which are botanically far apart from each other, and belong to separate species, genera and families. The commonest fungi found belong to the genus *Monilia.* The term "thrush" covers in reality a group of clinically similar conditions, rather than one only; two principal types may be distinguished clinically, the white or gray-white type, extremely common, and the yellow or yellow-brownish type, of rare occurrence.

I may add that during the last three months, Dr. Turner and I have investigated the etiology of thrush in New Orleans (only the white variety was so far found), and of twelve cases, we have found that ten were due to strains of *Monilia pinoyi;* one to a strain of *Monilia tropicalis,* and one to an *Oidium*—probably *O. matalense.*

STOMATITIS CRYPTOCOCCO-BACILLARIS

The appearance of the lesions is different from thrush. The patches, which are generally of large dimensions, are hardly raised at all, and are not cream white; they have the appearance of a thin translucid whitish film covering parts of the oral mucosa, occasionally giving the impression of being patches of incipient diffused leukoplakia, but the microscopic examination of scrapings will clear the diagnosis. The first two cases of this stomatitis I observed in Central America; recently I have seen a case of the same, or of a similar condition, in England, but the investigation of this case has not yet been completed.

The condition is caused by a yeastlike fungus living in symbiosis with a bacillus.

Yeastlike Fungus (*Cryptococcus graciloide* Castellani, 1925).—Delicate yeastlike organism, gram-positive, not acid-fast. Each cell is roundish or more often oval, with frequently a flasklike shape. In preparations from the cultures the average maximum longitudinal diameter of most cells is from 3 to 4.5 microns, and the maximum average transverse diameter is from 2 to 3 microns.

Cultural and Biochemical Characters.—Dextrose Agar: Minute colonies somewhat streptococcus-like.

McConkey Lactose Agar: Minute colonies, but growth often more abundant than on dextrose agar.

Gelatin and Serum: Growth exceedingly scanty; neither of the mediums is liquified.

Lead Agar: No evident darkening of the medium.

Dextrose and Other Sugar Peptone Waters: Apparently no production of acidity or gas, but the organism grows extremely scantily in these mediums, and sometimes growth does not take place at all.

Classification of the Organism.—As the fungus is morphologically yeastlike, it comes under the general heading "Yeastlike Fungi," the classification of which I have briefly described in the first section of this paper.

This yeastlike fungus never shows the presence of asci; mycelium is completely absent; the budding takes place by one budding at a time; the organism does not produce a thick pellicle in fluid-sugar mediums. It should therefore be placed in the genus *Cryptococcus.* The peculiar flasklike appearance often shown by this fungus might be an argument to place it in another genus, the genus *Pityrosporum,* which is said to differ from the genus *Cryptococcus* as follows:

1. The vegetative cells have a flasklike appearance and do not show a well-marked double contour. 2. It has not been cultivated.

The genus *Pityrosporum* Sabouraud, 1895, contains two species, *Pityrosporum ovale* Bizzozzero, 1882, and *Pityrosporum cantlici* Castellani, 1908. Morphologically the fungus I have isolated is similar to *P. ovale,* but it differs from it in the fact that it is of smaller dimensions and is cultivable, and, moreover, certain cells may show a double contour. In my opinion the fungus should be placed in the genus *Cryptococcus.*

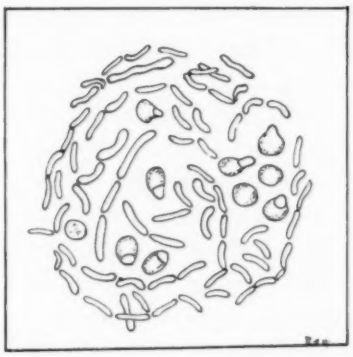

Fig. 2.—Cryptococcus graciloides and Bacillus vermiculoides living in symbiosis. From a case of stomatitis cryptococcobacillaris.

Bacillus vermiculoides Castellani, 1925.—This bacillus apparently lives in symbiosis with the *Cryptococcus* I have described; I have separated the two organisms with great difficulty, but I now have pure cultures of both. The bacillus is of rather large dimensions, its length varying between 2 and 6 microns; it is often curved. It is gram-positive, not acid-fast. The optimum temperature seems to be 37 C., but it may grow, though much less abundantly, at a considerably lower temperature, 22 C. and even less.

Dextrose Agar: Minute colonies somewhat resembling those of certain streptococci.

Gelatin: Growth scanty or absent altogether, no liquefaction.

Serum: No liquefaction of the medium.

Sugar Peptone Waters: It produces acidity, but no gas in dextrose, levulose, maltose, galactose and lactose. Usually change does not take place in the other sugar peptone waters.

Litmus Milk: The medium is rendered acid and after a time may become clotted.

Biochemical Reactions of the Associated Organisms: When sugar mediums are inoculated with a mixed cryptococcus-bacillus culture, acid and gas are slowly produced in dextrose and levulose; only acidity is produced in lactose, maltose and galactose and litmus milk is rendered and clotted.

TONSILLOMYCOSES

For some years I have called attention to the comparative frequency of diseases of the tonsils due to the higher fungi, or mycetes, both in the tropical countries and in the temperate zone. Jointly with Dr. Mackenzie Douglas, and with Dr. T. Thomson, of London, I have described several cases which occurred in England. It may perhaps be of interest to deal again with the subject. Tonsillomycoses may be divided into two groups; (*a*) chronic tonsillomycoses; (*b*) acute and subacute tonsillomycoses. Chronic tonsillomycoses are well known, and have been studied by a number of observers. Acute tonsillomycoses have so far attracted less attention.

CHRONIC TONSILLOMYCOSES

Chronic tonsillomycoses are generally due to fungi of the genus *Nocardia, sensu lato,* which includes *Cohnistreptothrix, Leptothrix* and *Vibriothrix.* Nocardias are also known as *Actinomyces* and *Streptothrix.* The mycologic data about these genera, all belonging to the order *Microsiphonales,* have been given in the first lecture.

GRANULAR MYCOSIS OF THE CRYPTS

The disease, which is not new, but is little known, runs a chronic course and is not painful. It seems to be more common in the tropics than in the temperate zone. I saw several cases in Ceylon. The patient often does not come to consult the physician because of a sore throat, but because of the unpleasant odor of the breath. On the tonsils are seen small whitish yellowish spots which are in reality the surface portion of the granules contained in the crypts, and which may be extracted with more or less ease. These bodies when crushed emit an offensive odor; under the microscope they are seen to consist of masses of nocardia-like organisms, at other times of masses of leptothrix and vibriothrix; in certain cases, both nocardial fungi and leptothrix are seen, as well as various bacteria, and even protozoa such as spirochetes, amebas and flagellates. The nocardia fungi present in the nodules have been thoroughly investigated by Davis in America, and are difficult to grow. After several years, the masses in the crypts may become calcified, and real calculi may be formed, which sometimes form the starting point of some severe inflammation.

ILLUSTRATIVE CASE (LONDON)

Mrs. N., European, aged 28, in good general health, did not complain of a sore throat, but was greatly distressed, suffering from severe fetor oris, which

was apparently the cause of some estrangement with her husband. In the surface of the tonsils, several whitish yellow spots were seen. In further examination they were found to be small nodules easily removed from the crypts. The microscopic examination showed masses of filamentous fungus; attempts at cultivation failed. All the nodules were extracted, and applications of glycerin of borax were ordered. The result was satisfactory.

TONSILLO-ACTINOMYCOSIS

Primary actimycosis (nocardiasis, cohnistreptothricosis) of the tonsils is rare. Most of the cases are of the yellow or white type; generally only one tonsil is affected. The tonsil is much enlarged and contains one or several small abscesses which, on bursting, discharge pus containing the typical yellow or white granules due to fungi of the genera *Nocardia* and *Cohnistreptothrix*. In the tropics, I observed a case with black granules due to *Nocardia nigra*. Perry and Potter have recently thoroughly investigated a case of tonsillo-actinomycosis in England.

ACUTE AND SUBACUTE TONSILLOMYCOSES

Acute and subacute tonsillomycoses are, in my experience, comparatively common.

The following is an etiologic classification of these conditions:

1. Due to fungi of the genus *Monilia*, tonsillomoniliasis.
2. Due to fungi of the genus *Saccharomyces*, tonsillosaccharomycosis.
3. Due to fungi of the genus *Cryptococcus*, tonsillocryptococcosis.
4. Due to fungi of the genus *Oidium*, tonsillo-odiosis.
5. Due to fungi of the genus *Willia*, tonsillowilliasis.
6. Due to fungi of the genus *Hemispora*, tonsillohemisporosis.
7. Due to fungi of the genera *Aspergillus* and *Penicillium*, tonsillo-aspergillosis, tonsillopenicillosis.

The botanic characters of the foregoing genera have been given in the first lecture.

ACUTE TONSILLOMONILIASIS

The onset of acute tonsillomoniliasis is usually abrupt with general malaise, fever and difficulty in swallowing. On inspection of the throat, in most cases, the tonsils are seen to be covered with creamy white patches, which at times extend to the soft palate, the pharynx and larynx. Diphtheria is often suspected, but the microscopic and cultural examination of the patches clears up the diagnosis. In other cases the clinical appearance is that of follicular tonsillitis. The prognosis is generally favorable, but not always. In a case in Ceylon, the fungal infection spread to the bronchi and lungs and a severe mycotic bronchopneumonia developed. The treatment consists in local applications of

glycerin and borax, and, most efficacious, a carbolic or a chlorine spray. Small doses of antipyrine or acetylsalicylic acid may be given internally.

ILLUSTRATIVE CASES

CASE 1.—*History.*—On Aug. 5, 1921, Pensioner N. (Ministry of Pensions Hospital, Orpington) developed tonsillitis with temperature 102 F., a rapid pulse rate and prostation. On the tonsils and fauces was a white, easily detached membrane. Neither in the direct smear nor by culture methods were diphtheria bacilli found. In the direct smear, made at the bedside, were a large number of *Monilia.* From cultures on Loeffler's medium and dextrose agar, *Monilia* was grown at 37 C., and isolated in pure culture. The patient made a good recovery after using a chlorine gargle.

Biologic Reactions of the Monilia.—*Monilia* isolated gave the following reactions: (1) dextrose, acid and gas; (2) levulose, acid and gas; (3) maltose, acid and gas; (4) galactose, acid and gas; (5) saccharose, nil; (6) lactose, nil; (7) inulin, nil; (8) litmus milk, nil.

The monilia biologically corresponds to *Monilia metalondinensis* Castellani, 1916.

Intravenous Inoculation of Isolated Monilia.—An emulsion of *Monilia* was made from a dextrose agar slope, and 1 cc. of a white opaque emulsion was injected by Dr. Mackenzie Douglas into a vein in the ear of a rabbit. In five days' time the animal died, and cultures of *Monilia* were obtained from the heart, blood, lungs, liver, spleen and kidney.

Naked eye appearance of the organs: In the lungs there were areas of congestion but there was no pneumonia. Both kidneys were greatly enlarged. The capsules stripped readily and showed the surface white and granular. On section the cortex was whitish. This was due to white specks, none larger than a pinhead, closely set together. There were a few discrete specks in the medulla which otherwise showed little change to the naked eye. In the other organs changes could not be noted by the naked eye.

Microscopic appearance of the kidney: Microscopic sections showed *Monilia* scattered throughout the substance of the kidney, but mostly in the cortex. A few lay singly, but for the most part they were small groups and surrounded by small round cells. The glomeruli were not greatly affected. The convoluted and other tubules were distinctly degenerated and many of them crushed, owing to the presence of groups of *Monilia.* The collecting tubules were less affected, but in their lumen were many red blood corpuscles and small white cells. The interstitial tissue was not increased. Between the tubules, however, especially in the medulla, there was a considerable amount of homogeneous matrix, which stained pink with eosin. In the medulla the groups of *Monilia* were confined mainly to the periphery. In the clusters there was no caseation, no increase of fibrous tissue and no giant cells.

The organism isolated from the heart blood of this rabbit was injected in a similar manner into another, and in the same manner the second rabbit died in five days. At autopsy, the naked-eye appearances of the organs were in every way identical with those described previously, as were also the microscopic pictures of the kidneys. The same *Monilia* was isolated from its heart blood and from the organs.

CASE 2.—A Cingalese girl, aged about 11, was admitted to the Infectious Diseases Hospital of Colombo in 1910 with the diagnosis of diphtheria. There

were white patches on the tonsils, uvula and soft palate. The temperature was rather high (102 F.); the pulse rate was fast and of low pressure. There was some swelling at the angle of the jaw. The child developed symptoms of bronchopneumonia and died three days after admission. Antidiphtheria serum was given twice by the physician in charge of the hospital. The microscopic and bacteriologic examination of the patches for the Kleb-Löffler bacillus, carried out with the usual technic, serum mediums, etc., remained negative. Bacteria were not seen in the specimens taken directly from the patches, but numerous mycelial and conidial elements of a fungus were present. On serum and glycerin agar mediums colonies of diphtheria or other bacteria were not produced. The fungus had all the biochemical characters of *Monilia tropicalis* Castellani.

Case 3.—A young European lady, aged 22, became suddenly ill with sore throat at one of the Colombo hotels. Her medical attendant suspected diphtheria, and called me to see her in consultation. On examination, her temperature was 101 F., and the pulse rate was 98; she complained of difficulty and pain in swallowing; both tonsils and uvula were covered with white creamy patches. Preparations made from the patches revealed an enormous number of yeastlike organisms and a few cocci, while bacilli of any kind were not present. On dextrose agar tubes a fungus grew in a pure culture with all the characters of a monilia. This monilia rendered milk slightly acid, and then decolorized it completely; it did not liquefy serum or gelatin. On serum it induced a narrow zone of black discoloration all around the growth.

Case 4.—In a young man, attached to one of the embassies in London, the onset was abrupt with fever, severe pain in swallowing and creamy white patches which developed rapidly on the tonsils, uvula and soft palate. The practitioner in charge was in doubt whether the condition was diphtheria or Plaut-Vincent's angina, and called me in consultation. Smears showed the absence of spirochetes and bacilli; instead a large number of yeastlike cells were present. The cultural examination showed absence of the diphtheria bacillus; instead, a monilia with all characteristics of *Monilia metalondinensis* was grown.

TONSILLO-OIDIOSIS

The clinical symptoms are similar to those observed in tonsillomoniliasis except in a type which I have called tonsillomycosis spiculatia. The oidia so far found are *Oidium matalense* Castellani, *Oidium rotundatum* Castellani and strains of *Oidium lactis*.

ILLUSTRATIVE CASES

Case 1.—A European, aged 25, had been in Ceylon for several years. In November, 1914, he was taken ill with a severe sore throat, difficulty in swallowing and high fever (104 F.). When seen by me twelve hours after the onset, both tonsils, but not the uvula, were covered with a diffuse, white exudation. The microscopic and bacteriologic examinations showed absence of the diphtheria bacillus, while a fungus was grown with the botanic characters of an oidium. Further investigation showed it to be similar to *O. matalense*.

Case 2.—A young English planter, while in a nursing home in London last November, where he was treated for chronic malaria, complained suddenly one morning of sore throat, with difficulty in swallowing; his temperature was 101 F.

Examination of the throat showed the typical picture of an ordinary follicular tonsillitis. The microscopic and cultural examinations, however, showed the presence of an oidium: *Oidium rotundatum.*

The condition which Thane called *Tonsillomycosis spinulosa* runs a subacute or chronic course. On inspection of the tonsils, numerous white, grayish or brownish erect spicules are seen, generally originating in the crypts. The spicules consist of a fungus: *Oidium matalense* or *Oidium asteroides.*

TONSILLO-WILLIASIS

The clinical symptoms are identical with those of tonsillomoniliasis.

ILLUSTRATIVE CASES

An Indian girl, aged 14, in England for her education, became suddenly ill at the end of October, 1922, with high fever, severe sore throat and difficulty in swallowing. When I saw her, both tonsils and the uvula were covered with creamy white patches. Microscopically bacilli were not present; instead, numerous fungoid elements and a few cocci could be seen.

A cultural investigation was carried out; it was negative for *Bacillus diphtheria.* A fungus was grown with the general characters of the genus *Willia.* A determination of the species was not attempted.

The patient improved rapidly on a treatment consisting of a local spray of 1 per cent carbolic acid, painting with glycerin or borax and a sodium salicylate mixture given internally.

TONSILLOHEMISPOROSIS

The clinical symptoms are somewhat different from tonsillomoniliasis. The onset is acute, but the general and local symptoms do not disappear so rapidly, and the patches are not creamy—they are grayish brown, or even grayish yellowish, and are resistant to treatment. The fungus found is a hemispora, usually *Hemispora rugosa* Castellani.

ILLUSTRATIVE CASES

CASE 1.—In a European planter the illness had started two weeks previous to his admission on May 2, 1913, to the Kandy hospital under Dr. Spittel who has supplied me with the notes. The temperature on admission was 101 F. He complained of severe pains in the throat and difficulty in swallowing. His face was flushed and he felt extremely weak and exhausted. The voice was thick and nasal; swallowing was painful and difficult; fluid regurgitated through the nostrils, and there was a profuse flow of saliva. The muscles of the neck were rigid; the submaxillary glands were enlarged and painful. The patient was unable to open the mouth wide. The tongue was thickly coated and dry; the soft palate was swollen. Grayish membranes were present in the left tonsil, the left anterior pillar and the soft palate. Diphtheria antitoxin (2,000 units) was injected by the house-surgeon the same day into the flank, and a spray of hydrogen peroxide was prescribed. During the next four days the general condition improved, but the whitish grayish membranes in the cleft between the left tonsil and the left pillar were still evident. Nine days after admission, a small whitish patch was still visible, but the patient felt quite well and was discharged the following day. In smears made from swabs taken for examination

bacilli were not seen, but a few cocci and numerous large segments of a fungus were present. Serum tubes and glycerin agar were inoculated as usual; also several sugar agars. The serum and glycerin agar tubes did not show any growth of the diphtheria bacillus; instead, there was a growth of a fungus with a peculiar crinkled surface, which I had found previously in 1909 in a case of bronchitis. I placed it temporarily in the genus *Monilia*, and called it *Monilia rugosa*. It was later sent to Professor Pinoy, of the Pasteur Institute, who, after a long botanic investigation, came to the conclusion that the organism belonged to the genus *Hemispora*. The correct name of the fungus became, therefore, *Hemispora rugosa* Castellani.

Case 2.—Mrs. N. B. came to consult me in September, 1921. She complained of a sore throat which had begun three weeks before; she had been treated with various gargles. There was a large grayish yellowish patch on the right tonsil. The microscopic and cultural examination revealed the presence of *Hemispora*. The local condition healed after repeated applications of iodine. It is interesting to note that soon after signs of bronchitis developed, and the same fungus was found in the sputum.

Case 3.—A young English woman, married, came to consult me in London in May, 1925. A few months previously while in the East she had a severe sore throat and the local practitioners thought that the condition might be diphtheria, but serum was not given. After the acute symptoms disappeared, a grayish whitish patch remained on the right tonsil. This was still present when the lady came to consult me, and I found that it was *Hemispora rugosa* Castellani.

An interesting feature of the case was the following: When she came to see me, she complained of severe discomfort and discharge from the vulva. An examination of her genital organs revealed a grayish brownish patch on the inner surface of the right labium, somewhat similar to that present on the tonsil. From the patch the same fungus (*H. rugosa*) was grown. Local applications of diluted tincture of iodine cured the condition.

SUMMARY AND CONCLUSIONS

Tonsillomycoses or diseases of the tonsils due to fungi higher than bacteria (mycetes) are not, in my experience, rare. I have seen cases in tropical and subtropical countries and also on the continent of Europe and in England. They may be caused by a variety of fungi, mostly fungi of the genera *Monilia, Oidium, Hemispora* and *Nocardia*. They may be clinically separated into two groups: chronic tonsillomycoses and acute tonsillomycoses. Chronic tonsillomycoses have been known and studied for many years, but the subject of acute tonsillomycoses has not so far received much attention in medical literature. The subject is, however, important from a practical point of view, as acute tonsillomycoses may at times clinically simulate diphtheria, Plaut-Vincent's angina and follicular tonsillitis.

BRONCHOMYCOSES

Diseases of the bronchi and lungs, associated with the presence of fungi in the sputum, are not at all rare, though comparatively little attention has been paid to them till recently. These conditions may be

due to a variety of fungi, belonging to different species, genera, families and orders, but from a practical point of view may be classified as follows:

1. Due to fungi of the genus *Nocardia* Toni and Trevisan, 1899; *Cohnistreptothrix* Pinoy, 1911, and *Anaeromyces* Castellani, Douglas and Thompson, 1921.

2. Due to fungi of the genus *Monilia* Persoon, 1797; *Oidium* Link, 1890; *Saccharomyces* Meyen, 1833; *Willia Hansen*, 1904; *Cryptococcus* Gilchrist and Stoker, 1896; *Coccidioides* Rixford and Gilchrist, 1898.

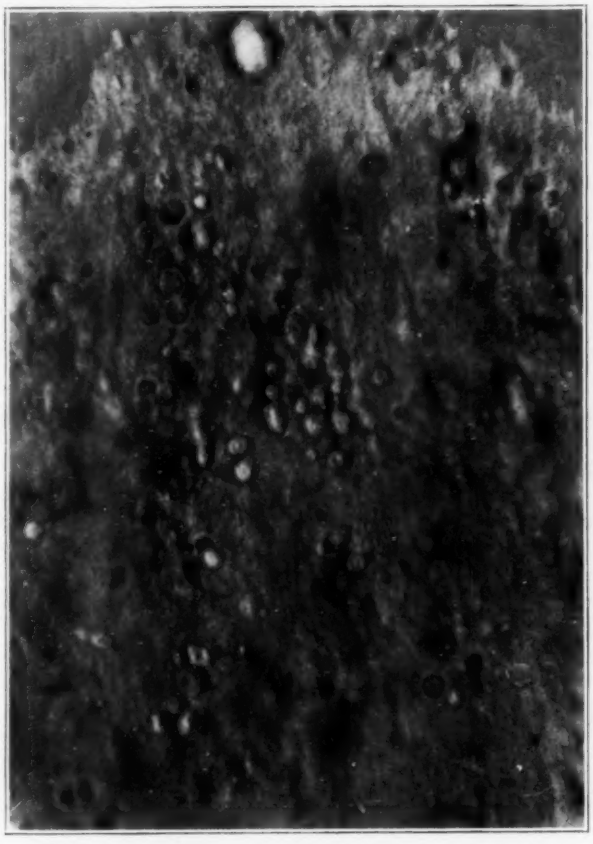

Fig. 3.—Sputum in a case of bronchomoniliasis.

3. Due to fungi of the genus *Hemispora* Vuillemin, 1906.

4. Due to fungi of the genus *Aspergillus*, 1729; *Sterigmatocystis* Cramer, 1869; *Penicillium* Link, 1908; *Mucor* Micheli, 1729; *Rhizomucor* Lucet et Constantin, 1900; *Lichtheimia* Vuillemin, 1904.

5. Due to the fungi of the genus *Acremoniella* Saccardo (broncho-acremoniellíasis).

6. Due to fungi of the genus *Sporotrichum* Link, 1809.

7. Due to fungi of the genus *Acladium* Link.

8. Due to fungi which have not yet been classified.

Another simple classification of bronchomycoses is the following:

1. Due to yeastlike fungi, viz., fungi of the types *Monilia, Cryptococcus, Saccharomyces* and *Endomyces.*

2. Due to filamentous fungi: (*a*) of the slender type, viz., fungi of the types *Nocardia, Anaeromyces* and *Vibriothrix;* (*b*) of the larger type, viz., fungi of the types *Oidium* and *Hemispora;* (*c*) with characteristic fructifications—*Aspergillus, Penicillium, Mucor, Rhizomucor, Acremoniella, Sporotrichum, Acladium,* etc.

The symptoms are somewhat similar, whichever fungus is the etiologic factor. In mild cases there are signs of slight bronchitis with mucopurulent expectoration, in which the fungi are found. In severe cases the patient presents all the symptoms of phthisis, with hectic fever and hemorrhagic expectoration. Mild cases may become cured spontaneously; but they are often benefited by potassium iodide.

The prognosis varies a great deal, according to the causative fungus; the cases due to *Nocardia* have the worst prognosis.

I will briefly describe a few of the bronchomycoses I have mentioned; viz., bronchonocardiasis, bronchomoniliasis, bronchohemisporosis and broncho-amaeromycosis.

BRONCHONOCARDIASIS

Bronchonocardiasis is the modern term used to denote all bronchial and bronchopulmonary conditions due to fungi of the genus *Nocardia* Toni and Trevisan, and the genus *Cohnistreptothrix* Pinoy which were previously more commonly known as *Streptothrix, Actinomyces, Discomyces* and *Oöspora.*

Two types of bronchonocardiasis may be separated. One is characterized by the presence of fungal granules (sclerotia) in the sputum—granular bronchonocardiasis.

In the other type such granules are not present—agranular bronchonocardiasis. The first type is still often referred to as actinomycosis bronchialis, or actinomycosis pulmonalis and the second type as pseudo-actinomycosis bronchialis or pseudo-actinomycosis pulmonalis. The botanic data on the nocardial fungi have been given in lecture I. They belong to the order *Microsiphonales* which are characterized by mycelium composed of fine bacilliform hyphae, usually 1 micron or less in diameter. They are, as a rule, gram-positive when young, and without distinct nuclei; they are parasitic or saprophytic.

AGRANULAR BRONCHONOCARDIASIS

(Bronchostreptothricosis, Pseudo-Actinomycosis, Pseudo-tuberculosis pro parte)

This is one of the most serious types of bronchomycosis. It generally runs a chronic course, although occasionally acute cases are encountered.

The patient loses flesh, becomes anemic and often has serotine fever; expectoration is at first mucopurulent and is later tinged with blood; true hemoptysis may occur. The physical examination of the chest may reveal patches of dulness, crepitations and pleural rubbing; occasionally, however, the physical examination will reveal nothing.

The microscopic and cultural examination of the sputum is most important, segments of thin, bacillary fungi will often be found, branching, at times acid-fast, at times not acid-fast but gram-positive. Aerobic and anaerobic methods of cultivation should be used, as some nocardias (*Cohnistreptothrix*) grow only anaerobically.

The treatment in these cases consists of giving potassium iodide in large doses internally, and autogenous nocardia vaccines by hypodermic injection. Occasionally, this mixed treatment gives good results, but in my experience most cases do not respond to this or any other treatment I know of, and end in death.

GRANULAR BRONCHONOCARDIASIS

(Broncho-Actinomycosis)

The clinical symptoms in granular bronchonocardiasis are similar to those observed in agranular bronchonocardiasis, but the sputum contains small granules composed of an enormous number of thin mycelial filaments, mixed with some débris. This type of nocardiasis is more amenable to treatment than the agranular type, and potassium iodide in large doses is fairly frequently successful.

ILLUSTRATIVE CASES

(Agranular Bronchonocardiasis)

CASE 1.—A European man, aged 32, had been a planter in various tropical countries during the twelve years previous. Two years before admission he began complaining of a slight cough, with a little expectoration. Physical examination of the chest revealed little, apart from a slight diminution of resonance in the left supraclavicular region. The cutireaction was negative.

The sputum was examined twelve times for the tubercle bacillus with constantly negative results. Instead, a branching, gram-positive, partially acid-fast organism was present, which I succeeded in growing. A protracted course of potassium iodide treatment, combined with the subcutaneous administration of autogenus vaccine, prepared with the fungus, was successful.

CASE 2.—This interesting case was investigated at St. John's Hospital by Dr. Woodward, who has allowed me to quote it and has supplied me with the following notes:

"Captain served through the war, and after demobilization went to Rhodesia where he had previously resided. In the early summer of 1922 he began to feel unwell and showed loss of weight, and had a cough and some expectoration. A few weeks after this, he started to come home on leave to England, and the condition progressed. On his arrival in England he came to see me and told me this history: He had lost a considerable amount of weight and brought up sputum

that at times was bloodstained. He looked very ill, and appeared to be in a condition of rapid phthisis. On examining a direct smear of his sputum, I found it full of a network of branching rods, showing numerous ramifications, being acid-fast with Ziehl-Nielsson stain. He had an evening temperature, for some little time, which varied from 100 to 101. Shortly after this he went under the care of a physician, who tried all sorts of treatment of a medicinal nature without its having the slightest effect on the condition.

"My findings of nocardia (Streptothrix) were confirmed in July last year by Dr. Benians, who inoculated a guinea-pig intravenously. The animal showed considerable wasting, and was killed on the sixteenth day. Multiple nodules were scattered throughout the viscera. In August, 1922, specimens of the sputum were sent to me periodically, always showing the same microscopical picture. Owing to the presence of pyorrhoea in the patient, I was asked to examine his gums. I did not find the nocardia, but there were spirochaetes very largely mingled with fusiform bacilli.

"The clinical picture showed a steady development, the patient continuing to go gradually down hill.

"In November there appeared two pyemic abscesses—one in the neck and the other in the side. I examined the pus from both of these places, and in direct smears they both showed the streptothrix to be present in very large quantities. No other organism was seen, nor was there any growth obtained of any other organism.

"He died in the month of November, 1922.

"I find that the organism was markedly acid-fast with Ziehl-Nielsson stain, but after keeping, the color tended to disappear. It was gram-positive, and showed distinct variations of staining inside the rods. The organism from the sputum was at first anaerobic, and I grew it in a glucose broth. Later when I obtained the organism from the pus, it was aerobic and anaerobic and grew very much more easily on any media than when I had obtained cultures from the sputum. It showed a white, flowery-looking growth. I gave intra-peritoneal inoculation into a guinea-pig and it died on the eighth day."

Granular Bronchonocardiasis

CASE 1.—A Serbian soldier, aged 23, presented all the usual clinical symptoms of pulmonary tuberculosis, great loss of flesh, serotine fever and bloody expectoration. Physical examination of the chest revealed patches of dulness with crepitations and pleural rubbings. The sputum was mucopurulent, occasionally tinged with blood. It contained at times some small whitish granules the size of a pinhead, composed of an enormous number of thin, mycelial filaments, branching, gram-positive and partly acid-fast. The fungus grew fairly well aerobically on maltose and dextrose agar. The colonies developed slowly, were hard and were firmly attached to the medium. They were pinkish, and gelatin was slowly liquefied. Potassium iodide was administered in large doses and also hypodermic injections of an autogenous nocardial vaccine, but without any marked beneficial result.

CASE 2.—An Indian student, aged 20, was sent to me because his medical attendant suspected tuberculosis, but could never find the tuberculosis bacillus in the sputum. The patient was thin and had serotine fever and sweatings; he coughed a great deal; the expectoration was at times mucopurulent, at times hemorrhagic. I had him cough, in my presence, into a sterile Petri dish, and in the sputum, which was mucopurulent, I noticed several minute, yellowish bodies,

or granules, which microscopic examination revealed to be composed of thin mycelial elements, gram-positive, but not acid-fast. I grew the fungus with great difficulty. Potassium iodide in large doses (30 grains [1.95 Gm.] three times a day) without any vaccine had an almost wonderful effect; within five weeks all the symptoms disappeared.

BRONCHOMONILIASIS

I first called attention to this bronchial condition in Ceylon, in 1905, and valuable work on the subject has been carried out recently by a number of authors: Chalmers, O'Connell, Farah, Macfie, Iacono, Taraknath Sur, Johns, Pollacci, Redaelli, Perin and others. The condition, however, is still little known, though it has been found in many tropical and subtropical countries, and also in temperate zones.

Pinoy described cases in France, Pijper in South Africa and Macfie in West Africa, and Chalmers and MacDonald and Farah observed a number of cases in the Sudan and Egypt. Taraknath Sur made a thorough study of the disease in India. Iacono found several cases in the south of Italy, and cases were recently found in England by Douglas, Thompson and me, and in America by Johns, Boggs and Pincoff and Simon. The condition appears to be caused by several species of the genus *Monilia* Persoon, usually *M. tropicalis* Castellani, *M. Pinoyi* Castellani, *M. krusei* Castellani and *M. metalondinensis* Castellani.

The botanic description of these fungi has been given in lecture I. It must be noted that monilias presenting the same biochemical reactions may differ enormously with regard to pathogenicity. Some may produce a severe infection when inoculated into rabbits; others may be harmless.

Clinically, a mild type and a severe type of the malady may be differentiated, with, of course, a number of intermediate cases. In the mild type the general condition of the patient is good and there is not any fever. The expectoration is mucopurulent and often scanty, and does not contain blood. Physical examination of the chest is negative or reveals only a few râles. The condition may last for several weeks or months, be cured spontaneously or, continuing, may turn into the severe type.

The severe type closely resembles phthisis. The patient becomes emaciated, there is hectic fever, and the expectoration is often hemorrhagic. At times the sputum has a peculiar odor, resembling that of certain commercial or brewer's yeasts. Physical examination of the chest may show patches of dulness, fine crepitations and pleural rubbing. This type may be fatal.

The treatment consists in giving potassium iodide, with which glycerophosphates and balsamics may be associated. It is interesting to note, however, that in a certain number of cases potassium iodide is practically without beneficial action. Vaccines are occasionally useful.

ILLUSTRATIVE CASES

CASE 1.—A. T. S., a pensioner, born in 1890, joined the British army in 1914. While serving in 1916 he noticed a slight cough with scanty expectoration, but his general condition of health was fairly good. The ailment continued until December, 1921, when the sputum began to be bloody and the patient began losing flesh. The weight in July, 1919, was 11 stones, 4 pounds (71.7 Kg.); in March, 1922, 9 stones, 8 pounds (60.8 Kg.); in June, 1922, 8 stones, 13 pounds (56.7 Kg.).

He was suspected to be suffering from tuberculosis and was sent to the Ministry of Pensions Hospital, at Orpington, on March 31, 1922, for observation. His general condition of health was fairly good, but he was thin. The patient had a slight serotin fever of low type, not influenced by quinine, the temperature ranging from 99 to 99.4 F. There were no regular sweats. The cough was more severe in the morning than at night. Examination of the chest did not reveal anything definite. A few coarse râles were present; the roentgen-ray examination did not show any evidence of tuberculosis lesions. The complement deviation test for the tuberculosis bacillus was negative. The Wassermann reaction was negative.

The sputum was examined for the tuberculosis bacillus many times but it was always negative. A fungus was grown with the characteristics of *Monilia metalondinensis* Castellani.

Treatment with potassium iodide and creosote was administered, and all the symptoms disappeared. He was discharged from the hospital as cured, but his family physician wrote to us some months afterward that the patient was feeling well and was able to do a day's work.

CASE 2.—Colonel A. S., while in India, developed symptoms of subacute bronchitis with mucopurulent expectoration and occasional hemorrhage. A diagnosis of bronchomoniliasis was made and the patient was sent home. I was able to confirm the diagnosis. He got well on potassium iodide and creosote. In this case the monilia was of the *Pinoyi* type.

Inoculation Experiments in the Lower Animals.—In Ceylon I carried out a fairly large number of researches on the virulence of various monilias and the experimental reproduction of bronchomoniliasis. More recently Mendelson, Douglas, Iacono, Redaelli and others have worked on the subject in the tropics, England and Italy. The results of these researches may be condensed briefly as follows:

1. A few monilia strains are nonvirulent. Their inoculation into rabbits and guinea-pigs by the subcutaneous, intravenous, intraperitoneal, intrapleural or intrapulmonary route does not kill either the rabbit or the guinea-pig, and the inoculated animals do not show any sign of sickness. These strains have generally been isolated from the air.

2. Certain monilia strains are virulent and kill the rabbit and guinea-pigs, when intravenous or intrapulmonary inoculations are used, but they do not produce any evident pseudotuberculous nodular condition of the lungs.

3. Certain monilias, when intrapulmonary inoculations are made (and at times intravenous inoculations), produce a peculiar nodular condition of the lungs. For instance, if an intrapulmonary injection of 0.5 or 1 cc. of a thick emulsion of *Monilia metalondinensis* Castellani strain C (isolated from a severe type of bronchomoniliasis) is made through the thorax in a rabbit, by means of a syringe, and the animal is killed from fifteen to twenty days after, the postmortem examina-

tion will show that both the lung that was injected and the lung that was not injected present numerous white nodules, which are generally larger in the inoculated lung. Some of these nodules may coalesce, forming a staphyloid mass. The invasion of the noninoculated lung apparently is by the bronchi, which in many cases can be made out to be greatly expanded; in some places their wall has given way. The histologic examination of the smaller nodules, which are about ⅛ inch (0.3 cm.) in diameter, shows that the center is composed of masses of small cells and polymorphonuclear leukocytes. Further out, the cells are fewer. This corresponds to the area of the degenerating expanded bronchiole. Still further out there is a ring of endothelial cells; many of them are phagocytic, containing smaller white cells, and there are a few large multinucleated giant cells. There are also in this ring a large number of eosinophil cells. At times the cells in the center of the nodules are markedly degenerated, the nodule becoming caseous. A Gram-stained section shows only a small number of monilias, and few of the spores take the Gram stain. Between the nodules pneumonia is not present in most cases, but there is some congestion and a considerable increase of endothelial cells. In the small arteries the intima is greatly thickened. The histologic description is based on the researches carried out on the subject by Douglas, Thompson and me. The animal inoculations were performed by Douglas. The histologic lesions found in experimental moniliasis have also been thoroughly studied by Redaelli.

Diagnosis.—The diagnosis is based on the absence of the tubercle bacillus and the constant presence of monilias in the sputum. It is essential that the sputum should be collected in sterile receptacles after the patient has gargled thoroughly with warm, sterile water, and the sputum should be examined immediately. In certain cases the microscopic examination of the sputum shows sporelike, roundish or oval cells which often present a double contour and occasionally some portions of mycelial threads. In other cases, the microscopic examination is completely negative, and the fungus can be found only by cultural methods. At any rate, it is impossible to make a definite diagnosis of bronchomoniliasis without a cultural investigation, which should be carried out as follows:

A small amount of sputum is smeared on several tubes of dextrose or maltose agar, which should be kept at a temperature of from 22 to 25 C. for two or three days, when, in positive cases, white, rather large, roundish colonies will appear, which are easily differentiated, as a rule, with a little practice, from the colonies of cocci and other bacteria. To determine the species of *Monilia* present, the strain isolated should be further investigated by inoculating milk, gelatin, serum and the following carbohydrates: dextrose, levulose, maltose, galactose, saccharose, inulin, cactose and dextrin; and animal inoculations in rabbits should also be performed to see whether the strain isolated is virulent or not, and whether it is capable of producing pulmonary lesions.

It is essential to remember that the mere presence of a monilia fungus in the sputum should never be considered sufficient to establish the diagnosis of primary bronchomoniliasis. When a monilia is found in a sputum collected with all due precautions to avoid external contaminations and examined at once, there are three possibilities:

1. The monilia, though present in the expectoration is not virulent and not pathogenic, and lives saprophytically in the bronchi (saprophytic moniliasis). In such an event the monilia inoculated intravenously into a rabbit will be found to be nonvirulent, and when intrapulmonary inoculation is made it will not produce lesions in the lungs or general infection.

2. The monilia, though virulent, may represent only a secondary invader, a secondary infection (secondary moniliasis); in this case the intravenous injection of the fungus will kill the rabbit; the intrapulmonary injection will not as a rule cause any localized nodular condition in the lungs. It will induce a general fungus septicemia from which the animal will die.

3. The monilia is the real cause of the broncho-alveolar condition (primary moniliasis); in such cases the intrapulmonary injection into a rabbit will produce a characteristic nodular condition of the lungs. When the animal dies spontaneously or is killed, from fifteen to twenty-one days after the intrapulmonary injection, both lungs (the one injected and the other in which injection was not made) are studded with a large number of white nodules containing the fungus. These white nodules are about ⅛ inch (0.3 cm.) in diameter. In the intervening lung tissue there are signs of congestion, but no pneumonia.

The center of the small nodules is composed of masses of small cells, polymorphonuclear leukocytes; further out there is a ring of endothelial cells, many of them phagocytic and containing smaller white cells; and there are a few large multinucleated giant cells and a large number of eosinophil cells. The cells in the center of the nodule are markedly degenerated, and the nodule is becoming caseous. Gram-stained sections show only a small number of monilias, and few of the spores take the Gram stain. Between the nodules there is some congestion but no pneumonia, and there is a considerable increase of endothelial cells. In the small arteries the intima is greatly thickened. The invasion of the lung tissues (in the side not injected) apparently takes place through the bronchi. These can in many cases be made out to be greatly expanded, and in some places their wall has given way.

Mixed Infections.—Cases of apparently true mixed infection, as for instance, bronchomoniliasis and bronchospirochetosis, have been recorded by several observers. A secondary moniliasis is frequently encountered in pulmonary tuberculosis.

Prognosis.—The prognosis of true primary bronchomoniliasis must be reserved, as at times treatment is without avail, and the patient becomes worse and finally dies.

Treatment.—Potassium iodide is useful in certain cases, but not in all. It is advisable to associate with it the administration of balsamics (principally creosote) and glycerophosphates. Monilia vaccines are useful in only a few cases.

TEA TASTER'S COUGH

In connection with bronchomoniliasis, I will call attention to the so-called "tea taster's cough" and "tea factory cough." In 1906 a young

assistant in one of the big Ceylon firms, a tea taster, came to consult me about a chronic cough, which, he said, had not yielded to ordinary treatment, and had been suspected by several medical men to be of tuberculosis origin. He emphatically stated, however, that he did not believe the condition was tuberculosis. "I am merely suffering" he said, "from tea taster's cough," an expression I had never heard before. The general condition of the patient was good, and physical examination of the chest revealed only a few coarse râles. The microscopic examination of the sputum was negative for tuberculosis; instead, I noticed microscopically some mycelial filaments and some yeastlike bodies. I inoculated several dextrose agar tubes, and grew a monilia fungus which, at the time, I believed to be an endomyces.

How did this patient become infected? Tea tasters, in order to judge of the quality of the various teas, not only taste infusions, but also often fill their hands with the tea leaves and bury their noses in them, sniffing them up; in this way a certain amount of tea dust enters the nasal cavities.

Now, if one examines tea dust, in Ceylon, one finds that it contains fungi of the genus *Monilia* constantly, of the genera *Aspergillus* and *Penicillium* frequently and of the genus *Oidium* occasionally. A peculiar streptococcus is also often present. The same organisms are not rarely found in the nasal cavities of tea tasters, and when bronchial symptoms appear in them, monilia-like fungi are present in the expectoration. It is probable, therefore, that the so-called tea taster's cough is a moniliasis; especially, since a guinea-pig, in the nostrils of which I insufflated tea dust regularly, died with symptoms of chronic bronchopneumonia.

What I have said about "tea taster's cough" applies to a great extent to the so-called tea factory cough. For many years planters in Ceylon have noted that the coolies doing work in tea factories, where the leaves are dried and there is a large amount of tea dust floating about, after some months become weak, lose flesh and often have a cough, with mucopurulent expectoration. The planters have found by experience that the coolies must be taken away from the factory and sent to work in the field; then the symptoms slowly disappear. I have examined some of the coolies, and their expectoration practically always contained fungi of the genus *Monilia*. I have little doubt, therefore, that the so-called "tea factory cough" is a bronchomycosis, and probably a bronchomoniliasis.

BRONCHOBLASTOMYCOSIS

Bronchoblastomycosis, a condition well known in this country, is caused by *Cryptococcus dermatitis* Gilchrist and Stokes, 1898, and allied organisms. In the sputum, large round or oval bodies are found, from

10 to 16 microns in diameter, with a well marked double contour and a granular protoplasm. The fungus when grown on dextrose-agar generally produces white, fluffy colonies.

Bronchoblastomycosis is generally secondary to cutaneous blastomycosis. The prognosis in most cases is bad, but potassium iodide given in massive doses produces at times a marked improvement.

BRONCHO-OIDIOSIS

Broncho-oidiosis is clinically identical to bronchomoniliasis and, as is the case with bronchomoniliasis, a primary and a secondary form should be distinguished. The fungi belong to the genus *Oidium sensu* Pinoy and are characterized by abundant mycelium with numerous arthrospores, but, in contrast to *Monilia,* free yeastlike budding cells are absent or rare. They may produce acidity in various sugars and other carbohydrates, but never gas. This genus (*sensu* Pinoy) contains four principal species:

O. lactis Link, 1809.
O. rotundatum Castellani, 1911.
O. asteroides Castellani, 1914.
O. matalense Castellani, 1915.

They may be differentiated as follows:

1. Surface of the culture smooth or only slightly crinkled, produces acidity in dextrose, though not constantly, but not in any other carbohydrate—*O. lactis.*

2. Surface with duvet, does not produce acidity or only slight acidity in the usual carbohydrates—*O. matalense.*

3. Surface vermiform, acidity in dextrose, levulose, galactose, maltose and lactose—*O. rotundatum.*

4. Colonies with peculiar radiating appearance.—*O. asteroides.*

BRONCHOCRYPTOCOCCOSIS

In bronchocryptococcosis the symptoms are identical with those found in bronchomoniliasis, but the causative fungi found belong to the genus *Cryptococcus.* These fungi consist of numerous yeastlike budding cells without any mycelium; the cultures never present asci—this is the only characteristic that differentiates them from true *Saccharomyces.* There are a primary and a secondary type of bronchocryptococcosis. The treatment is the same as for bronchomoniliasis.

BRONCHO-ENDOMYCOSIS

Broncho-endomycosis is caused by fungi morphologically identical with *Monilia,* but old cultures show the presence of asci. It is a rare condition. The symptoms and the treatment are the same as for bronchomoniliasis.

BRONCHOSACCHAROMYCETOSIS

Bronchosaccharomycetosis is caused by fungi of the genus *Saccharomyces* and other genera of the family of *Saccharomyceteae*. These fungi are characterized, from a practical point of view, by the following features:

1. Reproduction by budding.
2. Absence of mycelium.
3. Presence of asci in old cultures.
4. Gas fermentations of one or more sugars.

The symptomatology and treatment are the same as in bronchomoniliasis.

BRONCHOWILLIASIS

Bronchowilliasis is a rare type of bronchomycosis. The fungi found belong to the genus *Willia*. They are characterized by the peculiar bowler-hat shape of the ascopores, bowler-hat-like, etc. I have seen one case. The patient, a retired planter, recovered under treatment with potassium iodide. The symptoms were the same as those found in chronic bronchomoniliasis.

BRONCHOHEMISPOROSIS

Bronchohemisporosis, first described in 1910 by me, in Ceylon, is due to fungi of the genus *Hemispora* Vuillemin, which are characterized by the conidiophores terminating in an ampulliform structure with the formation of *Deuteroconidia*.

Two species have so far been isolated in Europe, one identical with *H. rugosa* Castellani, previously found in the tropics, and the other probably a new species or at least variety: *Hemispora pararugosa* Castellani, Douglas and Thompson. The principal characters of these two fungi are, briefly, the following:

Hemispora rugosa Castellani, 1910 (synonym *Monilia rugosa* Castellani, 1910) is a hyphomycete with the botanic characters of the genus *Hemispora;* it is gram-positive but not acid-fast; the growth on dextrose agar is abundant, with a crinkled surface, occasionally cerebriform, and amber yellow or brownish. Gas is not produced in any sugar, but a little acidity may be present in dextrose, levulose, saccharose and maltose. The fungus usually does not have any action on milk, but occasionally it induces a slight degree of peptonization with a small coagulum at the bottom of the tube. Gelatin is slowly liquefied. This fungus was first found by me in cases of bronchitis and tonsillitis, in Ceylon, and later by Pijper in certain cases of thrush. I at first placed the fungus temporarily in the genus *Monilia*, later removing it, at the suggestion of Professor Pinoy, to the genus *Hemispora*.

Hemispora pararugosa Castellani, Douglas and Thompson, 1921, is morphologically and culturally similar to *H. rugosa*. It is gram-positive, but not acid-fast. Gas or acid is not produced in the usual sugars and carbohydrates, but at times acidity is produced in starch. It does not liquefy gelatin, and acid or clot is not produced in milk.

Symptomatology.—A mild and a severe type of the disease can be distinguished. In the mild type the general condition of the patient is good, fever is not present, and he simply complains of cough. The expectoration is mucopurulent, and does not contain blood. Physical examination of the chest gives negative results, or only reveals a few coarse râles.

The severe type closely resembles phthisis; the patient becomes emaciated, there is hectic fever, and the expectoration may be bloody. Physical examination may reveal patches of dulness, fine crepitation and pleural rubbing. It is interesting to note that the condition occasionally develops after a tonsillitis caused by the same fungi, and characterized by the presence of yellowish or grayish patches.

Treatment.—Potassium iodide in large doses generally gives satisfactory results.

BRONCHO-ANAEROMYCOSIS

Broncho-anaeromycosis has been investigated by Douglas, Thompson and me. We have given, temporarily, the generic name *Anaeromyces* to a group of bacillary fungi of the order *Microsiphonales* Vuillemin, 1912, which are found in certain cases of bronchitis, and which show transition and intermediate characters between the genus *Corynebacterium* Lehmann and Neumann, 1896, the genus *Mycobacterium* Lehmann and Neumann, 1896, and the genus *Nocardia* Toni and Trevisan, 1889 (*Cohnistreptothrix* Pinoy 1911, proparte), of the family *Nocardiaceae* Castellani and Chalmers 1918 (*Actinomyces* Lachner-Sandoval, *Trichomycetes* Petrusky).

The organisms of this group, *Anaeromyces,* are closely related to the genus *Corynebacterium* Lehmann and Neumann (diphtheria and diphtheroid bacilli) and the genus *Nocardia* Toni and Trevisan (*Actinomyces* Harz, *Discomyces* Rivolta, *Streptothrix* Rossi-Doria, *Oöspora* Sauvageau and Radias, *Cohnistreptothrix* Pinoy, proparte); but, in contrast to the former, branching is much more marked, and they are strictly anaerobic; and, in contrast to the latter, the mycelium is much less developed, the growth is moist and not dry and crinkled. and they never give rise to actinomitic granules in the lesions. They are gram-positive, nonmotile and not acid-fast. These germs or similar cones, were found in cases of bronchitis in 1904 by Chalmers and me, and were referred to in a short paper read at the time as "Bronchial Anaerobic Diphtheroid Bacilli," but the observation attracted little notice. They are also somewhat similar to *Bacillus vitulorum* Flugge.

Anaeromyces bronchitica Castellani, Douglas and Thompson

Morphologic and Staining Characteristics.—The organism is bacillus-like and resembles in its shape a diphtheroid bacillus, but branching is much more marked. It is gram-positive and not acid-fast. It measures from 3 to 5 microns in length, and 0.3 micron in breadth.

Motility.—The organism is nonmotile.

Relation to Oxygen.—The organism is an obligate anaerobe.

Cultural Characters.—Provided a strictly anaerobic technic is used, the germ grows well in many of the usual laboratory mediums. The growth on dextrose agar and other mediums is not characteristic. The fungus does not seem to grow in gelatin at 22 C.

Biochemical Reactions.—Acid or gas does not form in any of the usual carbohydrates, viz., dextrose, levulose, maltose, galactose, saccharose, lactose and inulin.

Animal Experiments.—The action of this organism in the lower animals has not been fully investigated, but it does not seem to be pathogenic to guinea-pigs, rabbits or mice.

Pathologic Conditions in Man in Which Anaeromyces Bronchitica Has Been Found.—The fungus has been isolated from a fairly large number of cases of bronchitis which may be classified into two groups:

1. The hemorrhagic type.
2. The mucopurulent type

Cases of the hemorrhagic type closely resemble pulmonary tuberculosis; there may be intermittent or remittent fever; the patient may become anemic and lose flesh; the expectoration contains blood and is at times characteristic bright brick-red. Physical examination of the chest may be at times almost completely negative; at other times it may show signs, such as patches of dulness and crepitations, pointing to tuberculosis.

The symptoms noted in the mucopurulent type of the disease do not differ from those of an ordinary case of subacute or chronic bronchitis. The sputum is mucopurulent, or at times purulent; there may be slight fever, but the general condition of the patient is not affected for a long time. In some cases the mucopurulent type, after a variable period, turns into the hemorrhagic type.

Geographic Distribution.—The organism has been found in patients who contracted the disease in Ceylon, in the Federated Malay States, Serbia, Italy, France and England.

Mixed Infections.—Thompson and I have described cases of apparently true mixed infection—*Anaeromyces* + *Monilia.* The organism has been grown occasionally also from cases of tuberculosis.

Pathogenicity of Anaeromyces.—The animal experiments carried out by Douglas do not seem to show that the germ causes any serious lesion in guinea-pigs, rabbits or mice, and this is, of course, an argument against the organism's being pathogenic. On the other hand, the following facts favor its pathogenicity to man: (1) The anaeromyces present in the sputum rapidly decrease in amount, and finally disappear with

the gradual improvement of the bronchial condition; and (2) in a number of cases the hemorrhagic expectoration rapidly ceases and all the symptoms quickly disappear, when an anaeromyces vaccine is used without any other treatment. It is therefore probable that anaeromyces has at least some part in the etiology of certain cases of hemorrhagic bronchitis.

BRONCHO-ASPERGILLOSIS

This disease, known also as broncho-aspergillomycosis, pseudotuberculosis, *Aspergillus* pneumomycosis, and in France maladies des gaveurs des pigeons (pigeon-breeders), is caused by fungi of the genus *Aspergillus* Micheli and *Sterigmatocystis* Cramer. These fungi are easily recognized by their characteristic fructifications: the conidiophore terminates into an ovoid or roundish formation, from which take origin numerous elongated claviform elements, each of which supports a chain of roundish conidia. These fungi are generally saprophytes, but occasionally become true parasites. They grow easily in both acid and alkaline mediums. It is interesting to note that iron and manganese have a favorable influence on their growth and sporulation. When growing parasitically in the tissues of man and animals, they often lose some of their characters and the typical fructifications are often absent, only mycelial segments and yeastlike cells being seen.

The classification of *Aspergillus* has been given in lecture I. In practice the principal types may be differentiated as follows:

1. Conidia, of very large size (from 9 to 15 microns in diameter), yellow or reddish yellow, or gold-brown—*A. herbarorum* Wiggiers.

2. Similar to *A. herbarorum* in general characteristics, yellow or yellow-green, but conidia somewhat smaller though still large (from 7 to 8 microns)—*A. repens* DeBarry.

3. Similar to the foregoing two types, as regards color and being yellow or greenish yellow, but spores smaller (from 5 to 7 microns in diameter) and with a granular surface—*A. flavus* DeBarry.

4. On solid mediums, brownish black if the medium is alkaline or neutral, greenish if the medium is acid; conidia small (from 2 to 3 microns) and smooth —*A. fumigatus* Fresenies, 1775.

Symptomatology.—There are signs of mucopurulent bronchitis. In severe cases hemoptysis may occur and there may be serotine fever. The disease often terminates fatally, and at the postmortem examination numerous mycotic nodules may be found in the lungs and occasionally in the liver and kidneys and other organs. Care should be taken to distinguish secondary aspergillosis from primary aspergillosis. Secondary aspergillosis not rarely develops in tuberculosis and in gangrene of the lungs, and several cases have been recorded in this country.

Diagnosis.—This is based on the mycologic investigation of the sputum. It is important to note that, as a rule, in the sputum only conidia and mycelial elements are seen microscopically, and no aspergillus fructification.

Treatment.—The treatment is difficult. Potassium iodide is useful in incipient cases, and a change of climate and occupation should be recommended.

BRONCHOPENICILLIOSIS

The condition is clinically identical with broncho-aspergillosis, but the causative fungi belong to the genus *Penicillium* Link. Fungi of this genus are characterized by their fructifications, the whole fruit-bearing hypha with its sterigmas and conidia resembling a hair pencil (*Penicillium* = hair pencil). The species most frequently found in man is *P. crustaceum* Linnaeus (synonyms *P. glauccum* Linnaeus, *Monilia digitata* Persoon). The botanic description and classification of the genus has been given in lecture I. Penicilli are often found living saprophytically on bread, cheese and fruits. The conidia are spherical, and smooth, and have a maximum diameter of 4 microns.

In Macedonia, during the World War, a Serbian soldier was sent to the hospital to which I was attached, with the diagnosis of pulmonary tuberculosis. He had been wasting for two months, and had serotine fever. His expectoration was mucopurulent, at times bloody. Repeated examination for tuberculosis was negative. A few mycelial threads were present. A fungus was grown with the characters of *Penicillium,* probably *P. crustatum. Potassium iodide* in full doses gave satisfactory results.

BRONCHOMUCORMYCOSIS

This term is used to designate bronchial and broncho-alveolar diseases associated with fungi of the genus *Mucor* Micheli, 1729, and the following genera:

Lichtheimia Vuillemin.
Rhizomucor Lucet and Constantin.
Rhizopus Ehrenberg.

These genera belong to the family *Mucoraceae,* the members of which are characterized principally by the following features: aerial hyphae are present (gonidiophores) each of which supports on its distal extremity a pear-shaped globular or claviform formation, the sporangium or gonidiangium, which is at first separated from the gonidiophore by a septum. The septum later protrudes into the lower part of the sporangium to form a variously shaped structure called columella.

Inside the sporangium, gonidia (endospores) develop by free cell formation. Part of the sporangial protoplasm not used in the formation of the endospores becomes transformed into a peculiar mucilaginous

substance, which, at a later period, becoming swollen by absorption of water causes the bursting of the sporangium. Each endospore or gonidium which has become free in this way gives rise to a mycelial tube by germination. The mycelial tubes ramify, and an abundant mycelium is produced.

In some species a form of partial sexual reproduction takes place by a process of zygosporosis, or conjugation of two gametes which morphologically are not of different shape or structure; that is, they are not sexually differentiated. It must be noted that many species, when growing in unfavorable mediums, reproduce only by conida. They require plenty of oxygen, and therefore the medium tubes must never be closed with rubber caps; otherwise, they lose their characteristics and grow monilia-like or yeastlike. The botanic description and classification of the family *Mucoraceae* has been given in lecture I.

ILLUSTRATIVE CASE

During the World War, while I was in the Balkans, in 1917, a Serbian soldier was sent to me with the diagnosis of pulmonary tuberculosis. He was losing flesh rapidly and felt weak. There was slight fever at night, and a fair amount of expectoration, generally mucopurulent. Physical examination of the chest revealed nothing except a few course râles. Microscopic examination of the sputum for tuberculosis gave constantly negative results; instead, a few segments of mycelium were noticed on several occasions; dextrose agar tubes and other mediums were inoculated, and a fungus was isolated which at first showed the characters of a monilia; in subcultures, however, the characteristic features of a mucor appeared with presence of the globular sporangia (columella) 5 microns in diameter, yellowish, with the spores elliptical and smooth. In what way did this man become infected? He was in charge of horses and often had to remove the horse dung; as is well known horse dung almost always contain mucor.

BRONCHO-ACREMONIELLASIS

In a case at first considered to be broncho-aspergillosis. Perin isolated a fungus which was investigated by Pollacci. In dextrose agar it produces a growth which is at first whitish, but later soon becomes black. Microscopic examination of the cultures shows abundant septate mycelium, the hyphae being from 3.5 to 4 microns in breadth. Each conidiosphore bears a terminal round spore, dark brown, and from 7.7 to 9.7 microns in diameter. Pollacci considers the fungus to belong to the genus *Acremoniella* and has called it *Acremoniella perini*. Broncho-acremoniellasis clinically is identical with broncho-aspergillosis.

BRONCHOCLADOSPORIOSIS

From a case of chronic bronchitis with occasional hemorrhagic sputum I isolated a fungus similar to *Chlorosporium mansoni* Castellani which is the cause of tinea nigra. Potassium iodide gave good results.

BRONCHO-ACLADIOSIS

From two cases of chronic hemorrhagic bronchitis I have isolated a fungus which does not seem to differ in any important point from *Acladium castellanii* Pinoy, which is the cause of a peculiar ulcerative condition of the skin. The two patients recovered on treatment with potassium iodide.

BRONCHOSPOROTHRICOSIS

In cases of dermal sporothricosis the fungus may occasionally attack the bronchi and the pulmonary tissues. But there is also, though it is rare, a primary bronchosporothricosis. The patient has the symptoms of severe bronchitis or bronchopneumonia, with mucopurulent expectoration, occasionally tinged with blood. The diagnosis is based on the microscopic and cultural examination of the sputum. Microscopic examination will show the presence of yeastlike bodies in certain cases, in others it will give completely negative results. The sputum should be inoculated into several tubes of maltose agar, and left at a temperature of the room for several days. In positive cases whitish colonies generally appear, which soon coalesce, forming a whitish cerebriform mass and this later on becomes black or brownish. For the determination of species, hanging-drop cultures must be prepared, and also cultures on various mediums, etc. The classification is based principally on the size and shape of the conidia, and may be found in the chapters on fungi in Castellani and Chalmers' "Manual of Tropical Medicine."

The prognosis is favorable, provided a correct diagnosis is made at an early stage. Potassium iodide in large doses is a specific.

BRONCHOMYCOSES DUE TO UNCLASSIFIED FUNGI

In Ceylon and the Balkans, and recently in England, I have encountered cases of hemorrhagic bronchitis from which I isolated some peculiar fungi that have not yet been classed. Potassium iodide gave satisfactory results in most of them.

MYCOTIC DISEASES OF THE NERVOUS SYSTEM AND OF ORGANS OF SPECIAL SENSE

In 1904, from the pus of a cerebellar abscess, I grew an extremely delicate fungus, a nocardia which was gram-positive and partially acid-fast. Clublike formations were not present in microscopic preparations.

This nocardia grew comparatively well on sugar mediums, but slowly and scantily on ordinary agar. On all mediums the colonies had a black pigmentation. Abscesses of the brain and cerebellum due to true actinomyces have been described by several authors. In cases of general infections due to saccharomyces, monilia and endomyces-like fungi, abscesses containing such fungi may be found in the brain and spinal cord, as in other organs of the body. In this country, cases of cerebrospinal meningitis have been recorded due to *Cryptococcus histolyticus* (synonym *Torula histolytica*) Stoddard and Cutler, 1916.

ORGANS OF SPECIAL SENSE

Mycologic conditions of the eye may be classified as follows:

Due to species of genus *Nocardia* and genus *Cohnistreptothrix*, ocular nocardiasis.

Due to various species of genus *Saccharomyces, Cryptococcus* and *Endomyces*, ocular blastomycosis.

Due to fungi of genus *Monilia*, ocular moniliasis.

Due to fungi of genus *Oidium*, ocular oidiomycosis.

Due to fungi of genus *Aspergillus* and *Penicillium*, ocular aspergillosis and penicilliosis.

Due to fungi of genus *Sporotrichum*, ocular sporotrichosis.

Due to fungi of genus *Glenospora*, ocular glenosporosis.

The commonest disease in Ceylon is moniliasis. I have seen several cases of a conjunctivitis apparently due to monilia in Singhalese children; the conjunctiva was highly inflamed, and there were photophobia and purulent discharge. Microscopic examination showed in addition to pus cells, numerous yeastlike bodies. Gonococci or any other bacteria were not present. Agar and various agar tubes were inoculated with the pus, and a monilia fungus was grown. It should be noted that not rarely, at least in the tropics, spores of various fungi are found in the slight secretion that so often collects at the angles of the eyes even in normal people; but these spores do not, apparently, usually give rise to any symptoms.

Rhinomycoses.—Yeastlike and other fungi are often observed in the nasal mucus; they may play only a saprophytic rôle, or they may give rise to an inflammation of the mucosa. In Colombo a little native boy was brought to me by his parents, who stated that he had been suffering for the last three months from repeated attacks of severe sneezing, and that they had observed that on blowing the nose minute black dots were coming out in the mucus. Microscopic and cultural investigations showed this case to be one of aspergillosis due to *A. niger*. In the literature, cases of aspergillosis of the nose due to *A. glaucus* (De Bary) and *A. fumigatus* (Fresenius) have also been described. In New Orleans in a case of chronic sinusitis a beautiful red pigment producing fungus was found.

Otomycoses.—Various fungi may be present in the external auditory canal without causing any symptoms. In some cases, however, the fungus multiplies abundantly, and may be the cause of a local inflammation or may apparently facilitate the formation of a wax plug. In several cases I have found a monilia which I have called *M. rhoi.* In two cases of otomycosis I have found a fungus belonging to the family *Mucoraceae, Lichtheimia ramosa* Lindt, 1886. It was present in great quantity, and the patient complained of tinnitus aurium and deafness. It is interesting to note that this fungus is found often in the nasal mucus of horses, and that both my cases were *Tamil muttus* (horse keepers). Various authors (Siebenmann, Boke, Huckel and others) have recorded cases due to *Lichtheimia corymbifera* Cohn, *Rhizomucor septatus* von Bezold; Maggiora and Gradenigo found *Saccharomyces ellipsoides* Rhees in a case of chronic otitis media. The same authors found a new species of saccharomyces (*S. roseus*) in the eustachian tube.

Aspergillomycosis of the ear is comparatively frequent; I have seen several cases in Ceylon and recently in New Orleans apparently due to *A. fumigatus* Fresenius; Cramer observed *A. niger* von Tiegham; Wreden, *A. flavus* De Bary; Siebenmann, *A. repens* De Bary, and *A. nidulans* Eidam. Fungi of the order *Basidiomycetes,* family *Ustilagineae,* have also been observed; *Ustilago carbo* and *Tilletia levis.* Of the order *Hyphomycetes, sensu stricto, Tricothecium roseum* Persoon, 1801, has been observed in a few cases.

I may here mention that the best treatment I have found for the various forms of otomycosis is syringing with hydrogen peroxide 2 parts and alcohol 1 part provided a severe inflammation is not present. Mercurochrome-220 soluble is useful, also a solution of methylene blue. Some authorities recommend an alcoholic solution of salicylic acid.

CERTAIN MYCOSES OF THE GENITO-URINARY SYSTEM: URETHROMYCOSES

I will touch briefly on certain types of urethritis associated with the presence of fungi in the discharge. These urethrites may be classified as follows:

1. Discharge whitish or yellowish.
2. Discharge dark brownish or greenish black or black.
3. Discharge reddish or pinkish.

1. *Mycotic Urethritis with Whitish or Yellowish Discharge.*—This condition is not rare. I have seen several cases in the tropics and a few in the Balkans and in southern Europe. I have also seen three cases in this country probably of the same nature. The discharge is generally present in small amount and is whitish or yellowish, but occasionally it may be fairly abundant and closely resembles gonorrheal urethritis.

The fungi found generally belong to the following genera: *Monilia, Cryptococcus, Oidium, Saccharomyces and Nocardia.*

In Ceylon I noted the condition—due to a monilia—in several cases of diabetes: in these cases, the moniliae may affect not only the urethra but also the glans penis, producing a white membrane (thrush of glans penis); in certain cases, the glans penis and corona are affected, but not the urethra.

ILLUSTRATIVE CASE

A young Serbian officer in Macedonia consulted me for a fairly abundant purulent urethral discharge. He was greatly distressed; he was engaged to be married and believed that he was suffering from gonorrhea, though he denied having exposed himself to infection. I examined the secretion; gonococci were not present, instead a large number of yeastlike cells and a few mycelial segments could be seen. The cultural investigation showed the presence of a monilia similar to *M. krusei.* I prescribed a mixture containing potassium iodide, sodium bicarbonate, glycerin, syrup of tolu and irrigations with a solution of corrosive mercuric chloride 1 in 20,000. The discharge disappeared completely within ten days.

2. *Black Mycotic Urethritis.*—This condition is exceedingly rare, but I have seen cases in the tropics and in southern Europe. The discharge is present in small amount and is usually blackish, greenish black or brownish. In certain cases minute granules may be present, which, on microscopic examination, are seen to consist of mycelial threads and sporelike bodies. The fungi found generally belong to the following genera: *Cladosporium, Aspergillus, Penicillium* and, rarely, *Cryptococcus, Monilia and Nocardia.*

ILLUSTRATIVE CASE

An old Tamil coolie came to the Colombo Clinic in January, 1906, complaining of black urethral discharge dating from several months back. He stated that he had not had sexual contact for several years. The secretion was blackish and contained numerous small granules, which, on microscopic examination, were seen to consist of mycelial threads and sporelike bodies. Various sugar mediums were inoculated and a fungus was grown, which produced a black pigmentation, and was similar also in other characters to *Cladosporium mansoni* Castellani. In two other clinically similar cases, one in a native and the other in a European, I found aspergillus-like fungi. In another case I found a nocardia which gave rise to black colonies, in another a monilia which produced a black pigmentation.

3. *Red Mycotic Urethritis.*—This condition is rare, but I have seen a few cases in the tropics, the Balkans and southern Europe. I have recently seen a case in New Orleans.

The urethral discharge is usually in exceedingly small amount, mucous or mucopurulent, and reddish or pinkish. The cases of this condition may be divided into the following groups:

1. The discharge is associated with a red pigment producing cryptococcus.
2. The discharge is associated with a white monilia fungus plus a red pigment producing cryptococcus.

3. The discharge is associated with the presence of a white monilia plus a red pigment producing coccus.

4. The discharge is associated with the presence of white monilia and a red pigment producing bacillus.

ILLUSTRATIVE CASES

CASE 1.—A little Singhalese boy, aged 6 years, was brought to my clinic in Colombo by his parents because they believed he was passing blood from the urethra. The discharge, examined microscopically, consisted of some leukocytes and numerous budding cells. Several sugar agar tubes were inoculated, and a red pigment producing cryptococcus was grown. The child was given an alkaline mixture, and instillations of diluted glycerin of borax were carried out. This, however, did not improve the condition. Urethral injections of a solution of perchloride of mercury, 1 in 20,000, were then made, and a speedy cure resulted.

CASE 2.—Mr. L. N., Italian, for the preceding eight months had noticed a slight urethral pinkish or reddish discharge. Pain was not felt in passing urine. The microscopic examination showed an absence of gonococci and the presence of numerous coccal organisms and some yeastlike germs. The fungus (of the genus *Monilia*) I have grown several times in symbiosis with a red pigment producing coccus. I have separated the two organisms with some difficulty. The fungus gives rise to creamlike colonies while the coccus growth is a beautiful red.

It is interesting to note that I have found the same coccus, together with the fungus, in a case in which the discharge has always been white. The discharge becomes red only when the coccus is present in enormous numbers.

PRIMARY AND SECONDARY MYCOTIC URETHRITES

As is the case with so many other mycoses, the urethral fungal infection may be primary or secondary. I have encountered a monilial infection of the urethra in a case of gleet following acute gonorrhea.

Mycotic Vaginates.—I carried out an investigation on this subject in Ceylon during the years 1905-1915 and in Great Britain during the last eight years; in Great Britain the work was carried out jointly with Dr. F. E. Taylor; recently I have done some work on the subject in New Orleans.

It may be said in general that in normal women of clean personal habits fungi are not found or are extremely rare, in the healthy vagina. When a vaginal discharge is present, fungi are not at all rare.

The fungi I have found belong principally to the following genera:

Monilia, Saccharomyces, Cryptococcus, Nocardia, Vibriothrix, Oidium, Aspergillus, Sterigmatocystis, Penicillium, Chlodosporium, Alternaria and *Hemispora.*

They seem to be encountered much more frequently in hot climates than in cold countries.

Are these fungi, or some of them, really pathogenic? It has been stated that fungi of the saccharomyces type may be beneficent because

they have a tendency to increase the acidity of the vagina, and this way may render more difficult the growth of pyogenic germs.

Probably the fungi I have mentioned when present in small amount act only as saprophytes, but when present in large numbers they produce inflammation. I have seen cases of vulvovaginitis in which the mycotic origin was practically certain; like the cases of mycotic urethritis, they may be grouped as follows:

1. With white-yellow discharge.
2. With red discharge.
3. With black discharge.

Those of the first group are by far the commonest; the other two groups are exceptional.

Mycotic Vulvovaginitis with White or White-Yellow Discharge.—Generally, fungi of the genus *Monilia* are found in large numbers. Three clinical types associated with the presence of monilias may be separated: (*a*) the membranous type or "vaginal thrush"—thrushlike patches are present on the mucosa; (*b*) the purulent type—such patches are not present, but the secretion is thick and purulent, and in my experience these cases have not rarely been mistaken for gonorrhea; (*c*) a mixed type, thrushlike patches are present, and the discharge is purulent and thick.

In 1914, in Ceylon, I had the following experience. The surgeon in charge of the Colombo Gynecological Hospital had a patient, a middle aged Singalese woman in whom a pelvic operation was urgent; a thick, purulent vaginal discharge was noted, however, and he felt inclined to postpone the operation, as he suspected a possible gonorrheal infection.

I was asked to examine the discharge. Gonococci were not present; instead there was an enormous number of mycelial and conidial elements. Further investigations revealed the fungus to be *Monilia pinoyi.*

Recently, in England, Taylor and I have found several cases of purulent vaginitis of probable mycotic origin. The following species of *Monilia* were found: *pinoyi, metalondinensis* and *tropicalis.*

Attention might also be directed to the presence of numerous monilias in certain cases of chronic vaginal pruritus, although the rôle played by monilias in the causation of the pruritus has not been proved. Attention might be called also to a variety of pruritus vulvae and pruritus ani which I described sometime ago, caused by the localization of *Epidermophyton* fungi associated with *Monilia* fungi in the anoperineal region and external surface of the labia majora, without any distinct objective symptoms pointing to an epidermophytic infection.[2]

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2. Castellani, Aldo: Fungi and Fungous Diseases: Lecture III (Mycetic Pruritus Ani), Arch. Dermat. & Syph., to be published.

Mycotic Vaginitis with Red Discharge.—I have seen only one case that was apparently due to a red pigment producing cryptococcus present in enormous numbers. It is, of course, possible that the vaginitis may have been of some other origin, and that the cryptococcus present merely caused the peculiar reddish color of the mucopurulent secretion. In addition to the cryptococcus there was present in small numbers a gram-negative bacillus which I did not determine and some few gram-positive cocci of the staphylococcus type.

Mycotic Vaginitis with Black Discharge.—In old native women in the Far East, occasionally a vaginal discharge may be present in which small black granules are seen. Fungi of the genera *Aspergillus* and *Penicillium* have been grown.

Transmission of Fungal Infections by Sexual Contact.—As certain species of fungi have been found in both the male urethra and the vagina, it is not impossible that in certain cases the infection may take place by sexual intercourse.

PEMPHIGUS CHRONICUS WITH SIGNIFICANT ANTEMORTEM AND POSTMORTEM BACTERIOLOGIC OBSERVATIONS *

REPORT OF A CASE

ERNEST L. McEWEN, M.D.
CHICAGO

This case of pemphigus chronicus is reported because in its evolution there emerged so striking a relationship between clinical manifestations and bacteriologic observations as to constitute etiologic evidence of distinct significance; and because, in my opinion, every case that falls within the group of fatal diseases of the skin, in which autopsy was performed, should find a place in the literature. The care of the patient was entered on with certain assumptions as to the disease itself and the so-called Davis treatment. As these ideas influenced the general diagnostic and therapeutic procedures, the following statement of them is in order: 1. The disease is due to a blood-borne infection. 2. The source of the infection is focal. 3. The value of the Davis treatment centers around the use of coagulin. 4. The amount of iron or arsenic in 1 grain (0.06 Gm.) of iron cacodylate given on alternate days is not large enough to warrant the expectancy of rapid results. Subsequent eventualities made it impossible to test the validity of all these points.

REPORT OF A CASE

History.—The patient was a farmer whose principal complaint was an extensive, chronic and disabling eruption on the skin. The family and personal history exhaustively considered contained but few items of significance. There was not an hereditary taint. His childhood was marked by measles, mumps and scrofuloderma, but not scarlatina. As an adult he had been sick only a few days. He had always worked hard physically and had always been temperate, except possibly in his habits of eating and in his fondness for meat. There was a history of "lung congestion" when he was in his twenties. In his thirties, he had gained sharply in weight, albumin was found in the urine, and four teeth were devitalized and crowned. In his forties, he experienced a long and severe attack of pharyngitis. In recent years, there had been slight manifestations of rheumatism. He said that he had not had venereal disease. His real break in health began about one year before this report was written with the appearance of the present skin trouble in the form of a bullous eruption about the head. Shortly after this, sugar was found in the urine; six months later, after an abrupt onset of illness, he was successfully operated on for what proved to be gangrenous appendicitis.

Physical Examination.—The physical examination showed the patient to be a large, powerfully built man, six feet tall, who weighed about 240 pounds

* Read at the Fiftieth Annual Meeting of the American Dermatological Association, May 12-14, 1927.

(108.8 Kg.), and who appeared to be moderately ill. The face, neck, back to the sacrum, chest to the umbilicus and the outer surfaces of the arms presented a more or less continuous sheet of reddened, slightly infiltrated, scaling and crusting skin. The scales on the back were large and papery. Small areas in various places, especially about the neck, were moist and crusting. On the forehead and lower part of the abdomen were isolated areas of eruption separated by normal skin. These lesions showed a circinate configuration, with an undermining of the epithelium at the periphery. On the thighs were spots of pigment marking the sites of healed lesions; here, also, were to be seen a few lesions of the type which originally appeared about the ears, namely, split pea-sized, monolocular blebs, with slightly turbid contents and with an easily separable peripheral epithelium. The beard and scalp were matted with crusts; there was evidence of marked irritation about the eyelids, the foreskin and the anterior surface of the scrotum. The palms and soles and the buccal and nasal mucous membrane were free from eruption. The tonsils were large, red and obviously infected; there were four teeth with crowns, all of which showed a pathologic condition even in poor roentgenograms. The lungs and heart were normal; enlargement of the liver or spleen could not be demonstrated; there was not a marked adenopathy; the linear scar of an appendectomy was present; the prostate was slightly enlarged, and the reflexes were normal. The blood pressure was 180 systolic and 100 diastolic. Subjectively, there was a sense of illness, a slight amount of muscular lameness and a more or less constant feeling of burning and discomfort in the lesions on the skin, with a mild degree of itching at times.

Treatment.—In view of the extent of the eruption and the seriousness of the malady, he was hospitalized at once for further study of his condition and for treatment. After the routine hospital examination, together with blood chemistry estimations and cultures of the blood and bleb, it was proposed to start the Davis treatment, and to remove, as possible but unproved causal factors, the known foci of infection, the teeth to be taken first and the tonsils later.

A blood count showed hemoglobin and red cells to be at a high normal and the white cells to be greatly increased—21,200, with a differential count within normal limits except a high count of transitionals—2 per cent; there was no eosinophilia. A low blood platelet count was expected on the grounds that marked effects in pemphigus from the use of coagulin, a preparation elaborated from blood platelets, might indicate a deficiency of those cells. The contrary was found to be the fact, the figure obtained being 352,000. As possibly related to an increased vascular permeability as shown in chronic bleb formation, a blood calcium estimation was made. This was found to be 8.15, about three points below normal. The coagulation time of the blood was four minutes and forty seconds, which was approximately normal. The blood nitrogen stood at high normal levels: urea nitrogen, 14.37; nonprotein nitrogen, 34.74; uric acid, 4.21; creatinine, 1.52. The blood sugar was 0.17, and there was a small quantity of sugar in the urine. Cultures of the blood were negative. The contents of the blebs in plate culture showed hemolytic streptococci and gram-positive cocci in clusters; in anaerobic culture they showed gram-positive cocci in chains and clusters. Fermentation tests with the hemolytic streptococcus gave positive results with dextrose, levulose, galactose, maltose, saccharin, dextrine and salicin; negative results were obtained with mannite and lactose; litmus milk was rendered acid. The cocci in clusters were of the *Staphylococcus aureus* group. During the first four days, coagulin and arsenic were withheld. The administration of calcium lactate brought the blood calcium up to 8.72, a point still far below normal, without perceptible effect on the eruption. The blood sugar was reduced and the urine

sugar disappeared under a restricted carbohydrate diet. Two infected devitalized teeth were withdrawn without apparent effect. Attempts to take cultures of the roots of the teeth were not made.

On the fifth day, coagulin was started. Later on the same day the two remaining devitalized teeth were withdrawn—a right lower second molar and a right lower second bicuspid. The molar showed root absorption; the bicuspid carried a large granuloma with enough pericementitis to make necessary the removal of the outer wall of the socket of the tooth during the extraction. On the following morning, the patient experienced a heavy chill followed by a high fever. Blood taken at once and cultured showed many colonies of hemolytic streptococci on the plate in twenty-four hours. Closely following this adverse development, a most remarkable exacerbation and spread of the eruption occurred. New lesions appeared in great number, and old lesions increased in size by peripheral extension. The newly developing blebs were small and for the first few hours showed almost no inflammatory element; they usually appeared in the normal skin adjacent to the parts involved. The Nikolsky phenomenon became so marked as to necessitate great care to avoid mechanical damage to the skin. Cultures of the contents of the bleb showed hemolytic streptococci and gram-positive cocci in clusters on the plate, and gram-positive cocci in chains in anaerobic culture. Both the blood and bleb streptococci gave the same fermentation reaction as those found in the blebs previously. The gram-positive cocci in clusters were likewise of the *Staphylococcus aureus* group.

Owing to the suddenness and severity of the new development, it was impossible to make a critical application of the Davis treatment or to determine the possibility of a chloride retention. The eruption spread so extensively that venous blood for culture and tests could not be taken any longer. The use of antiseptics intravenously was judged unwise.[1] Coagulin alone was without apparent effect (which negated the third assumption mentioned in the beginning); but when supplemented with 3 grains (0.195 Gm.) daily of sodium cacodylate, there was an unquestioned slowing-down of the eruptive activity, but never a cessation. With the general slump in the patient's condition, sugar again reappeared in the urine and persisted. Nine days after the extraction of the lower teeth, there developed a hard, nonpainful and nonfluctuating swelling in the right submaxillary region. This was regarded as a cellulitis developing from the traumatized tooth-sockets, though these seemed to be in good condition. The swelling was not reduced by antiphlogistic measures, surgical intervention was refused, and later a considerable discharge of pus occurred in the mouth. The downward trend of the situation was not altered by vigorous therapeutic efforts, and the days preceding death were marked by a gradually failing circulation, erratic temperature, evidences of involvement of the lung, continual formation of new lesions on the legs and arms, recurrence of bullae about the head and the development of a pyodermia about the left eye and the left auditory meatus. At the time of death, only the palms, the soles and the mucous membrane of the mouth were free from bullous lesions.

Autopsy.—A complete autopsy was made. The anatomic observations, besides those of the skin were as follows: generalized septicemia; abscess of the jaw; bilateral bronchopneumonia, acute mucopurulent tracheitis and bronchitis, hypo-

1. The patient was seen in council by Dr. George Dick and Dr. Thomas C. Galloway. The dental operation was performed by Dr. James H. Keith. The pathologic work in the case was done by Dr. J. L. Williams and his assistants of the Evanston Hospital.

static hyperemia and edema of the lungs, slight chronic fibrous pleurisy on the left side; cloudy swelling of the myocardium, hypertrophy and dilatation of the heart, chronic fibrous myocarditis, sclerosis of the coronary arteries, slight sclerosis of the aorta and its chief branches and of the aortic and mitral valves and a few fibrous epicardial patches; a few submucous hemorrhages of the lining of the stomach, hyperemia of the lining of the large and small bowel, a small scar in the lining of the first part of the duodenum, an old laparotomy scar with ventral hernia, an old healed appendectomy, fibrous adhesions between the colon and the abdominal wall, postmortem digestion of the lining of the bowels, atrophy and fat infiltration of the pancreas with sclerosis of the islands of Langerhans, chronic passive hyperemia, fatty degeneration and cloudy swelling of the liver and chronic cholecystitis; chronic passive hyperemia and cloudy swelling of the kidneys, few mucous hemorrhages of the lining of the renal pelves and renal arteries, slight diffuse chronic nephritis (arterioslerotic kidney) and enlarged prostate; acute hyperemia of the cervical and tracheobronchial lymph glands, hyperplasia of the spleen and the biliary lymph glands; edema and hyperemia of the leptomeninges and of the brain and cysts of the choroid plexuses; calcification of the costal cartilages and calcareous changed in the intervertebral cartilages.

Briefly summarized, these observations represent changes incident to a generalized septicemia and to a local abscess of the jaw in a patient in whom extensive sclerotic changes were present. Incidentally, it may be stated that his history would indicate that these sclerotic changes were due to prolonged low grade infection, to long continued high protein diet or to both these factors.

Cultures of certain body fluids and organs after death gave the following results: Pus was taken from the abscess on the right side of the neck. By plate culture, many colonies of hemolytic streptococci and a few colonies of gram-positive cocci in clusters (*Staphylococcus aureus*) were obtained; anaerobically, gram-positive cocci in clusters and gram-positive bacilli were obtained. Blood was taken from the right chamber of the heart; culture by plate was sterile after six days; anaerobic culture resulted in one colony of gram-positive cocci in clusters (*Staphylococcus aureus*). From the spleen culture by plate resulted in a few colonies of hemolytic streptococci, a few colonies of gram-positive bacilli resembling pseudodiphtheria bacilli and a few colonies of gram-positive cocci in clusters; anaerobic culture produced a few hemolytic streptococci and gram-positive bacilli. Culture of the pericardial fluid by plate resulted in a few colonies of gram-positive bacilli and a few colonies of gram-positive cocci in clusters (*Staphylococcus aureus*); anaerobic culture resulted in a few gram-positive cocci in clusters. Culture of the spinal fluid by plate resulted in a few colonies of hemolytic streptococci, a few colonies of gram-positive bacilli and a few colonies of gram-positive cocci in clusters, anaerobic culture resulted in gram-positive cocci in clusters and gram-positive bacilli resembling pseudodiphtheria bacilli. Blood from the left chamber of the heart did not show growth after six days.

Briefly summarized, it appears that hemolytic streptococci were present in the pus from the abscess, in the pulp of the spleen and in the spinal fluid; that gram-positive cocci in clusters were found in all parts cultured, this form being identified in nearly all instances as *Staphylococcus aureus;* that in the spleen and in the spinal fluid a gram-positive bacillus resembling the pseudodiphtheria bacillus was found; that the pus from the abscess and in the spleen an unidentified anaerobic gram-positive bacillus was observed; and that the heart blood was normal except for one colony of *Staphylococcus aureus,* possibly a contamination. The hemolytic streptococci in these postmortem cultures showed the same fermentation reactions as those already described.

COMMENT

It will be noted that in the total antemortem and postmortem observations, a rather striking etiologic chain can be traced. A quiescent pemphigus chronicus with a negative blood culture yielded certain organisms in cultures of the contents the blebs, among them being a hemolytic streptococcus; an attempt to remove teeth in the lower jaw which were foci of infection was followed within twenty-four hours by a flooding of the blood stream with a hemolytic streptococcus and by a wild-fire outburst and spread of the bullous skin eruption. Certain identification tests gave the same reactions with the streptococci recovered from the blood and with the streptococci of the original blebs; also the same identification reactions were obtained with the streptococci of the new and of the old bullae. Later an abscess formed in connection with the root sockets of the offending teeth, the pus from which after death showed organisms identical with those found in the blebs, with the preponderating streptococcus, almost in pure culture, giving the same reactions as the one found in the blood stream. At autopsy cultures of certain organs and body fluids showed the presence of the same organisms as those found in original blebs, in the blood stream, in the new blebs and in pus from the abscess. Therefore, even though certain links are lacking to make the chain complete, the inference is legitimate and justified that the acutely developing manifestations on the skin were etiologically related to an acute streptococcemia, and that this invasion of the blood stream was in direct relation to the extraction of pathologic lower teeth which, by inference, were infected by streptococci. The further assumption is legitimate that in these infected teeth the primary cause of pemphigus was to be found in part or in toto.

SUMMARY

Because the etiologic evidence in this case, though incomplete, has unquestionable intrinsic value, and because it developed so suddenly after an attempt to remove a focus of infection, I am impelled to urge the desirability of assuming as possible the validity of focal infection as a source of multiplex pathologic processes in every case in which the causes are unknown and in which the prognosis as to life is bad. Careful and scientific efforts should also be made to prove or disprove the soundness of an hypothesis which promises so much in the field of dermatologic etiology.

ABSTRACT OF DISCUSSION

DR. J. FRANK SCHAMBERG, Philadelphia: I have been much interested in Dr. McEwen's communication. I did not quite comprehend whether he regarded the streptococcus infection from a periapical abscess as the cause of the pemphigus or merely as an added factor after it had existed for some time. In our research institute we have made extensive studies in pemphigus and have not infrequently

cultivated streptococci from the blood, particularly when using Rosenow's well known brain medium. It must be remembered that a patient may develop a streptococcus infection in his blood secondarily as a result of the lesions on the skin. You will recall the statement of Councilman some years ago that every patient who dies of variola dies of streptococcus infection. I have no doubt that the stirring up of the infection about the teeth may have aggravated the disease, but it would be difficult for me to believe that *Streptococcus hemolyticus* is the cause of pemphigus. It may be that a particular strain of the streptococcus is the cause of the disease. We have isolated several different strains of streptococcus. In one case of pemphigus in a colored woman, who has since developed a chronic exfoliative dermatitis which has interned her in a hospital for three years, we isolated a peculiar strain of streptococcus which grew so slowly that it might well be overlooked. After culturing on agar for four or five days, one could scarcely see the growth. I believe the so-called *Bacillus pemphigi* described by Eberson is admitted by Eberson himself to belong to the streptococcus group.

This report of Dr. McEwen is a real contribution to our knowledge and should stimulate others to further intensive study of this disease.

Dr. William Allen Pusey, Chicago: I wish to express my appreciation of this carefully studied case presented by Dr. McEwen. I think he is doing useful service in pointing out the possible great importance of focal infection in producing dermatoses. The most Dr. McEwen did was to give us an exceedingly suggestive history of the possible production of pemphigus by *Streptococcus hemolyticus*. It seems to me that he has given us a suggestive series of observations, and I wish to express again the view that, not only in this case, but in others that he has presented previously, he is working along a line that may be extremely fruitful.

Dr Ernest L. McEwen, Chicago: I did not present the case with any notion that by it the etiology of pemphigus would be established. The whole picture evolved rapidly. The family understood that the patient was in a desperate condition, and they were willing to take risks. As the teeth in question were obviously foci of infection, the idea was to remove them with caution; the sudden overwhelming of the man following their removal was, however, unexpected. The evidence was then found to be linking into a chain which seemed distinctly significant. I am not putting it forward as proved that a streptococcus produces pemphigus, but there seems to be an increasing tendency in the literature to find the streptococcus in this disease. I believe that if every case of pemphigus is studied with special reference to the existence of foci of infection and to the bacteriologic content of these foci, the etiology of the disease will ultimately be proved.

Correspondence

TUBERCLE OF CARABELLI IN CONGENITAL SYPHILIS

To the Editor:—In the recent literature on deformities of the teeth occuring in congenital syphilis, the tubercle described as present on the lingual surface of the anterior cusp of both first superior molars has figured more or less prominently.

This communication is not concerned with the diagnostic import of this anomaly of the teeth, which has not been accepted generally as a sign of congenital syphilis. It is intended to show that the name of Mibelli is being erroneously associated with this sign. Sabouraud, in his "Entretiens Dermatologiques," volume 2 new series, published by Masson et Cie, 1924, page 210, says: "Il existe un signe fréquent, ordinairement unique et qui paraît à lui seul démonstratif de l'hérédo-syphilis. Ce signe est l'existence à la face interne des premières grosses molaires supérieures des deux côtés, d'une *protubérance mamillaire* (italics mine) plus ou moin développée et saillante, rudiment d'une cuspide supplémentaire." On the following page, Sabouraud prints a letter from A. Drancé, a dentist, in which the latter informs Sabouraud that his "protubérance mamillaire" had been described previously by Carabelli and was known as the "tubercle of Carabelli." Sabouraud himself now uses the latter appellation.

In a recent discussion of the stigmas of syphilis (Arch. Dermat. & Syph. **16**:494 [Oct.] 1927), the eponym of Mibelli is used to denote this tubercle of Carabelli. I cannot find any reference in any of the available writings of Mibelli on syphilis or in any other works on this subject to a deformity of the teeth associated with his name. On the other hand, Georg Carabelli in his "Systematische Handbuch der Zahnheilkunde," 1844, volume 2, page 107, describes such a tubercle in detail, although its syphilitic significance is not dwelt on. Carabelli refers to this projection on the molars as "tuberculus anomalus." Considering the date of publication of Carabelli's book, 1844, Mibelli must have been an infant in arms, for he was still writing after 1900.

I think this is sufficient evidence to show the incorrect use of any other name than that of Carabelli to the "tubercle" he first described. Sabouraud is entitled to the credit of having shown its possible bearing on congenital syphilis. These minor errors that occasionally slip into medical periodicals may sooner or later find their way into the textbooks. I thought it advisable therefore to correct this error before it is too late.

Respectfully,

E. W. Abramowitz, M.D., New York.

235 West Seventy-First Street.

Editorial

SOCIETY TRANSACTIONS

Society transactions occupy a large part of the space in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY, and they are generally read with interest. Unfortunately, more unfavorable criticism of these transactions is expressed than of any other feature of the publication. The following sort of criticism is made: Cases are not presented with sufficient detail or clearness to allow the reader to form a satisfactory opinion of them for himself. Histories are often too short, the titles often being the only description. On the other hand, space may be occupied by uninteresting details instead of by important ones. (Cases often are not observed sufficiently before presentation; often the statement occurs "the patient was seen for the first time today or yesterday." It may be necessary to state the latter fact in interesting cases that have just come in and should be presented, and it is the only good excuse for presenting a case incompletely. But it is an excuse that should not be used too often.) Cases are often presented for diagnosis without a satisfactory diagnosis being made at the meeting. When these cases are referred to in subsequent reports, they are not described with sufficient clearness to allow the reader to identify the previous presentation. References to facts and names are often faulty. Opinions are too often given as final and authoritative; for example, the statement is made "Erythema induratum never breaks down" and, again, "psoriasis is never observed on the glans penis alone."

In addition to these criticisms of the substance of the reports, just criticisms are made concerning their form. Too frequently reports contain both bad English and bad Latin. And not only do bad English and bad Latin occur, but sentences the meaning of which is not clear. For example, one presenter said: "I feel that the 17 years of swelling probably began as a swollen tonsil," when he meant that the swelling which was observed seventeen years ago was probably a swollen tonsil. Again: "The lesion was soft and in the absence of syphilitic infection made me think that possibly it was congenital." "No one disputes that Hutchinsonian teeth are not a sign of congenital syphilis." In the latter sentence, the author intended to convey just the opposite meaning, namely, that Hutchinsonian teeth are a sign of congenital syphilis. Or, another author said: "Moniliform simply refers to the linear arrangement." Moniliform means necklace-like, and when applied to a rare form of lichen planus refers to an arrangement in lines or bands resembling a bead necklace.

Criticisms of this sort have come so often that the attention of participants in the meetings reported in these transactions should be called to them. Slips of the tongue in actual viva voce discussions are made by all. Such slips are not especially to be criticized, but slips of the pen in written transactions are in a different class. They mean at least great carelessness in editing remarks, and they often give the impression of ignorance. Most of the criticism of these defects could readily be overcome by individual correction of discussions with proper care before they are submitted for publication. The criticisms of the more important matter of lack of adequate presentation of cases goes deeper. It means that cases need to be studied thoroughly and presented with care if they are to receive the credit that they should have.

It is rarely of any use simply to record that Dr. X. presented a case of lupus erythematosus or of basal cell epithelioma. If it is worth while to make a record of such a case, it must be of sufficient interest to warrant an adequate report. Transactions that contain a few, or even one case, well presented and well discussed are much better than transactions that contain numerous cases about which little more is said than that such and such a case was presented and that several men agreed in the diagnosis. When cases are presented for diagnosis, it may be well to record simply that several discussers agreed in a certain diagnosis, but even in this instance it would be better if the grounds for the opinion were indicated in some detail. There would seem to be no reason for recording the fact that various discussers agreed in the diagnosis in a case concerning which there is no uncertainty.

It is not intended by these criticisms to discourage the reporting of society transactions, the presentation of cases or free discussion, provided they contain any points of interest. All are useful. There is no more instructive form of clinical literature. But, as in everything else, care in preparation is required to bring out the best points; in this form of literary production we are prone to be unusually careless.

Fewer cases better presented would be a good motto for our transactions.

Abstracts from Current Literature

Case of Oriental Sore. D. U. Owen, Ann. Trop. Med. **21**:277 (July 22) 1927.

The case described by Owen was first diagnosed as acne vulgaris. Later, however, *Leishmania tropica* was found in a sore. Five months later scrapings from sores on the face and elbow were found to contain *L. tropica* in large numbers. The face was covered with nodules, many of which were ulcerated, while others were subcutaneous. The nose, eyelids and ears were involved, one nodule being in the external auditory meatus. The neck, anteriorly and posteriorly, had not escaped. There were four nodules on the chest below the clavicular level. The dorsal surface of both hands and some of the fingers, the forearms, anteriorly and posteriorly, and elbows were also ulcerated. Two nodules had large rupial crusts. On the forehead alone, eighty odd separate nodules could be counted, and several were found on the scalp. There were about 250 nodules on face and forehead.

Rattner.

Occurrence of Staphylococcus Aureus Infection with a Scarlatiniform Rash: Report of Cases. F. A. Stevens, J. A. M. A. **88**:1957 (May 18) 1927.

Stevens calls attention to cases which resemble scarlet fever but which are due to staphylococcic infection. In these cases the tests for scarlet fever (blanching of the rash by intracutaneous streptococcus antitoxin, etc.) were negative, while the same procedures demonstrated *Staphylococcus aureus* as the offender.

Pseudo-Epitheliomatous Hyperplasia at the Margins of Cutaneous Ulcers with Special Reference to Histologic Diagnosis. C. White and F. D. Weidman, J. A. M. A. **88**:1959 (June 18) 1927.

The epithelial hyperplasia at the margins of cutaneous ulcers may resemble malignant change so closely that a histologic diagnosis of the true state of affairs is impossible. The authors' studies on this question show that in the ultimate analysis the clinical behavior of the condition is the final arbiter. Grades of nonmalignant hyperplasia are pictured and described from that of pronounced acanthosis to those showing all the characteristics of squamous cell cancer. The two histologic features that they regard as of most moment in the diagnosis of cancer are the embryonic character of the cells and the deep penetration of the corium. These two features, when interpreted by a pathologist with experience in epidermal hyperplasia, may justify the diagnosis of malignancy. The authors feel that many of the cases diagnosed in the past as beginning carcinoma at the margin of ulcers have been only exaggerated regenerative hyperplasias, and that unnecessarily radical treatment has been inflicted on patients because of these interpretative errors.

Torus Palatinus. J. E. Lane, J. A. M. A. **88**:1966 (June 18) 1927.

In a short note, Lane calls attention to this anomaly which has received little recognition in textbooks and which appears unknown to many in the profession.

Linseed Oil Dermatitis. F. J. Vokoun, J. A. M. A. **89**:20 (July 2) 1927.

This condition is common among workers in linseed oil mills. The eruption is usually present on the hands and arms and occasionally on the thighs — if clothing covering these parts is saturated. The exact nature of the irritating substance is unknown.

THE ANTITOXIN TREATMENT OF ERYSIPELAS: OBSERVATIONS IN ONE HUNDRED AND THIRTY-ONE PATIENTS AT BELLEVUE HOSPITAL. D. SYMMERS and K. M. LEWIS, J. A. M. A. **89**:880 (Sept. 10) 1927.

As a result of their experience, the authors are impressed with the value of this treatment. The dosage employed depended on the factors of the patient's resistance, the virulence of the disorder and on other conditions, but 25 cc. of unrefined antitoxin were usually injected initially. In the present series the mortality rate was about 5 per cent; the average length of stay in the hospital was appreciably shortened. The antitoxin treatment does not seem to diminish the incidence of complications.

IODODERMA FROM IODIZED OIL. G. H. BELOTE, J. A. M. A. **89**:882 (Sept. 10) 1927.

Belote's patient had an acneform eruption which was traced to a bronchial lipiodol injection for diagnostic purposes. This is probably the first report of a case of iododerma due to this cause.

SUBSTITUTE FOR THE MERCURIAL SPINAL MANOMETER. G. V. VISCHI, J. A. M. A. **89**:883 (Sept. 10) 1927.

Vischi suggests the use of the mercurial tube of a blood pressure apparatus attached by suitable tubing to the needle used for spinal puncture.

STUDIES ON THROMBO-ANGIITIS OBLITERANS (BUERGER): II. THE EFFECTIVENESS OF THERAPEUTIC PROCEDURES. S. SILBERT, J. A. M. A. **89**:964 (Sept. 17) 1927.

The author's observations showed that the spontaneous course of the disease in a large series resulted in obligatory amputation within five years from the onset in 77 per cent of the cases. Judged by the preservation of the affected extremities, none of the numerous therapeutic procedures so far advocated seem to be of definitely proved value. The author has treated eighty-four patients with intravenous hypertonic injections of saline, and during a period of four years' observation, only 12 per cent have required amputation. He does not make any claims for the value of this treatment, since the period of observation is too short to determine definitely its value. Whether or not smoking is the cause of the disease is not determined, but experience shows that this habit is a definite menace, and its cessation imperative.

EFFECTS OF COMBINED RADIATION AND LEAD THERAPY. F. C. WOOD, J. A. M. A. **89**:1216 (Oct. 8) 1927.

Wood's work has been confined to transplantable tumors of rats. He has used tumors with known susceptibility to irradiation. He believes that the action of lead suspensoid is a toxic one, as it is to be doubted that such minute amounts of lead as reach the tumor act as radiators of secondary rays. It appears that the lead poisons the tumor to a certain degree and that the roentgen ray carries the destruction still further. In carcinoma of high virulence in a rat, a combination of lead and roentgen ray was found more effective than either alone. But in a carcinoma of still greater virulence in a rat increase in the effectiveness of the roentgen ray was not observed. Dextrose and lead mixtures were not more efficacious than lead alone.

THE COMBINATION OF COLLOIDAL LEAD AND IRRADIATION IN CANCER THERAPY. H. J. ULLMANN, J. A. M. A. **89**:1218 (Oct. 8) 1927.

Ullmann found that the clinical and toxic effects of the metallic colloid varied enormously. There were regressions and liquefactions in some instances and no effects in others. But all injections produced decided systemic disturbances. The author's observations lead to the belief that lead may have

destructive action on malignant tissues, but that it is so toxic that its use is open to question. Lead appears to render malignant growths more susceptible to radiation. Instead of the metallic lead suspensoid, the colloidal orthophosphate was used, apparently with some advantage. The author thinks intensive investigation of this problem should be made either to develop this method of treatment or to prove it useless as soon as possible.

(NOTE.—In the discussion of both papers on lead therapy, all clinicians who had used the treatment made pessimistic statements about it.)

MICHAEL, Houston, Texas.

STUDIES ON THE NATURE OF THE GROWTH STIMULUS IN CANCER. MONTROSE BURROWS, J. Cancer Research **10**:239 (July) 1926.

According to the views of the author, cancerous tissue is a simple-growing cellular system, the result of a local vitamin imbalance in the organism. It is thought to be produced by anything which removes vitamin A or increases vitamin B content in the tissues.

DISTRIBUTION OF ARSENIC IN TUMOR-BEARING MICE. A. S. MINOT, J. Cancer Research **10**:293 (Oct.) 1926.

Among the observations in this study were those that trivalent arsenicals are retained in the tissues longer than pentavalent compounds, and that sulpharsphenamine enters into and is retained in tumors to a greater degree than arsphenamine, neoarsphenamine, tryparsamide, atoxyl and other arsenicals. Retention of arsenic in the tissue did not appear to have any detrimental effect on cancer.

THE MEASUREMENT OF QUANTITATIVE BIOLOGICAL EFFECTS OF ROENTGEN RAYS. C. PACKARD, J. Cancer Research **10**:319 (July) 1926.

The eggs of the fruit fly were found to be the most suitable material for studying the lethal effects of roentgen-ray treatments. Other factors being kept constant, it was found that the time for a lethal dose of filtered roentgen rays varied inversely with the square of the distance. The time varied directly with the amperage, and a uniform death rate was maintained with different filters by keeping the intensity constant.

H. R. FOERSTER, Milwaukee.

END-RESULTS IN EPITHELIOMA AND MELANOMA BY ELECTROTHERMIC METHODS. GEROGE WYETH, Phys. Therap. **45**:363 (Aug.) 1927.

A clinical presentation is given of a group of cases in which the patients were successfully treated for from three to five years previously. In some of the cases there were epitheliomas that had recurred after surgical, roentgen-ray or radium treatment. In each case, the author produced a peripheral ring of coagulation necrosis in healthy tissue by bipolar endothermy to cut off the circulation; he then removed the lesion with the endotherm knife. The glandular areas were treated in a routine manner with roentgen rays, though one case was cited in which involved glands were coagulated without an attempt being made to remove them.

SARCOMATOSIS OF SKIN, LUPUS ERYTHEMATOSUS, DUHRING'S DISEASE, EPITHELIOMAS TREATED WITH "GRENZ RAYS." GUSTAV BUCKY, Phys. Therap. **45**: 371 (Aug.) 1927.

The "Grenz Rays" occurring in the light spectrum between the ultraviolet rays and the roentgen rays and having analogous biologic properties have been employed by the author without harmful effects for four years. These rays have a length of about two angstrom units and are practically all absorbed

in the skin. Good results are usually obtained only after a marked erythema of several weeks' duration. The erythema is followed by pigmentation of several months' duration, after which the skin appears normal. It is said that telangiectasia does not occur and that when ulcers are produced, they are superficial and painless.

SOURCES AND PROPERTIES OF THERMAL RADIATION, ESPECIALLY ULTRAVIOLET RAYS USED IN PHOTOTHERAPY. W. W. COBLENTZ, Phys. Therap. **45**:407 (Sept.) 1927.

The author discusses and tabulates the phyiscal properties of different forms of radiant energy as determined by the United States Bureau of Standards and applies this information in therapy. He says that sunlight is not a practical source of ultraviolet radiation except at high altitudes, and that new types of commercial glass rich in quartz are of little practical value in sunlight therapy.

X-RAY STANDARDIZATION PROBLEMS. F. L. HUNT, Phys. Therap. **45**:422 (Sept.) 1927.

The United States Bureau of Standards is planning to establish a roentgen-ray unit dose and to standardize measurements of dosage by specifying the type of measuring instrument and the kind of calibration tests used. The photographic and pastille dosimeters are still used in England, while ionization methods are employed in Germany and France. The official German "R" unit is the amount of roentgen-ray energy which produces an amount of electricity equivalent to one electrostatic unit in passing through 1 cc. of air at 18 C. and 760 mm. of mercury pressure. The French or Solomon's unit is the amount of roentgen-ray energy producing the same ionization as 1 Gm. of radium element in one second 2 cc. distant from the ionization chamber filtered in the same axis and through half a millimeter of platinum. One "R" unit equals 2.25 Solomon units. Both these measurements refer to roentgen-ray intensity; the determination of the quality of the roentgen-ray or of the characteristics of the wave length is accomplished by measurements with a spectrometer or by determining the "half value layer" of absorption in copper or aluminum.

H. R. FOERSTER, Milwaukee.

INTRAVENOUS IODINE THERAPY. PRELIMINARY REPORT. BEDFORD SHELMIRE, Texas State J. Med. **22**:644 (Feb.) 1927.

Shelmire recommends intravenous use of a compound solution of iodine, when intensive iodine treatment is indicated as in deep fungus infections of the skin. The composition of the iodine solution that is recommended consists of:

Iodine	24 grains	1 cc. contains 1 grain of iodine
Potassium iodide.....	48 grains	
Water	1 ounce	

Up to 12 cc. can be given at a single injection. The average man should tolerate a total of 52.5 cc.

The sole complication is slight local thickening of the vein, after repeated injections. No systemic reactions have been noted. One case of sporotrichosis and one of cervical actinomycosis which had resisted all other treatment, were cured by intravenous iodine.

Shelmire believes, as does Ravaut, that this mode should prove useful in such conditions as chancroidal infections, erysipelas and influenza.

RATTNER.

ESPUNDIA. P. WEISS, Arch. f. Schiffs- u. Tropen-Hyg. **31**:311 (July) 1927.

This clinical and pathologic study of a variety of leishmaniasis of the skin and mucous membrane, common to the forest-covered regions of South America, was made at the request of the Peruvian government. Weiss found a marked preference for certain localizations: the forearms, the lower part of the legs, ears, nose and cheeks; namely, the uncovered portions. The infection appears to be acquired in the fields. A large number of animals, domestic and wild, were examined for *Leishmania,* but the results were negative. During nine years, in which time the author has seen 200 cases of espundia, he has never seen a case that was resistant to tartarized antimony. He suggests that the resistance that is sometimes seen may have been acquired by treatment with insufficient doses over a long period. Neoarsphenamine, useful in uta, is without influence on espundia. He obtained excellent results from inoculation with malaria, followed by treatment with neoarsphenamine, in an old case in which various methods of treatment had been resisted.

NECESSITY OF LIMITING THE IMPORTANCE ATTACHED TO THE WASSERMANN REACTION FOR TREATMENT AND PROPHYLAXIS. H. MÜHLPFORDT, Dermat. Wchnschr. **85**:946 (July 2) 1927.

Mühlpfordt believes that pregnancy may be responsible for a negative Wassermann reaction in syphilis, either through the majority of the spirochetes' being attracted away from the mother's organism to that of the fetus or through failure on the mother's part to elaborate antibodies, her energies being too much taken up by the nourishment of the child. He gives an illustrative case: A woman seven months' pregnant was infected nine weeks previously and presented fresh secondary symptoms, with a negative Wassermann reaction. After energetic treatment, the reaction became positive. He quotes other authors to show that ingestion of alcohol, follicular tonsillitis, influenza, German measles and uremia may be responsible for changing a positive into a negative reaction. To a long list of conditions, including erythema multiforme, psoriasis, pemphigus, erythema induratum, skin tuberculids, lupus erythematodes and menstruation (arm vein), in which the reaction may be positive, he adds (with illustrative cases) pityriasis rosea and Vincent's angina. He confirms Weineck's observation that when the conversion of a positive into a negative reaction has been difficult and tedious, the negative phase is lasting, and serologic recurrences are rare; whereas, a reaction that becomes negative after brief treatment soon reverts. He points out that it is not reasonable to expect early syphilis and late syphilis to present analogous serologic courses. The prognosis in old latent or tertiary or in old congenital syphilis is more unfavorable, in his opinion, when the Wassermann reaction is continuously negative than when it is occasionally negative or continuously positive. The same is true of children with congenital syphilis. Arsphenamine is the remedy for early syphilis. So long as the reaction of the spinal fluid is positive, treatment of patients with late syphilis and with a positive blood reaction must be continued. The question of infectiousness is not so much one of positive or negative Wassermann reaction as of the age of the infection. He believes that men in the third stage of syphilis may safely be allowed to marry and beget children. In these cases, however, he always examines the semen for spirochetes a number of times in the dark field. Furthermore, if the patient has ever had syphilitic prostatitis or orchitis, marriage must be forbidden. A woman with late syphilis and a negative Wassermann reaction may marry, but should not bear children. The author would allow both men and women with symptomless late syphilis who have been thoroughly treated, and with a stubbornly positive Wassermann reaction to marry if the spinal fluid reaction is negative. But both should be forbidden to have children. A man with congenital syphilis and a continuously negative Wassermann reaction in the blood and spinal fluid may be allowed to marry and beget children if repeated examination of

the semen in the dark field or with the author's special stain fails to reveal spirochetes. On the other hand, a woman with congenital syphilis must be forbidden to have children.

DECREASE OR ABSENCE OF FREE HYDROCHLORIC ACID IN SCLERODERMA. A. BUSCHKE, Dermat. Wchnschr. **85**:1077 (July 30) 1927.

Buschke found diminution or absence of free hydrochloric acid and decrease of the total acidity in the gastric juice of five patients with diffuse or circumscribed scleroderma. In two, the presence of pepsin was confirmed. He suggests that the question be further determined in a larger number of cases.

KELOID FORMATION AND MALIGNANT SYPHILIS. E. VOLLMER, Dermat. Wchnschr. **85**:1233 (Sept. 3) 1927.

A girl, aged 22, became infected with syphilis in the tonsil. She received nonspecific protein treatment, under which the disease developed in a malignant manner, with extensive necroses of the skin. The healing of the necrotic areas, which followed thorough treatment with arsphenamine, was accompanied by keloid formation.

RELATION BETWEEN VULVITIS APHTHOSA AND ERYTHEMA NODOSUM. E. SCHNABL, Dermat. Wchnschr. **85**:1281 (Sept. 10) 1927.

The patient whose case is described by Schnabl presented gangrenous ulcerations in the mouth and pharynx and aphthous vulvitis. Smears from both lesions contained *Bacillus fusiformis* and *Spirochaeta refringens*. Besides this, there were nodules, resembling erythema nodosum, in the skin and subcutaneous tissue of both legs. Schnabl suggests two explanations of the pathogenesis: 1. Both the vulvitis aphthosa gangraenosa and the erythema nodosum developed as sequelae of Plaut-Vincent's angina, and 2, Plaut-Vincent's angina and the vulvitis developed simultaneously; the erythema nodosum was a sequel of these and was caused by toxins originating from the fusiform bacillus and, in part, from disintegrated protein.

A SYMPTOM OF BISMUTH POISONING IN THE TREATMENT OF SYPHILIS. H. LÖHE and H. ROSENFELD, Med. Klin. **23**:1295 (Aug. 26) 1927.

Löhe and Rosenfeld call attention to a generalized pigmentation of the buccal mucosa, especially of the tongue, as a warning sign to interrupt treatment with bismuth. It is almost always accompanied by albuminuria and cylindruria, and often by Rumpel-Leed's phenomenon and by spontaneous petechiae of the mucous membrane of the mouth. This generalized pigmentation must be differentiated from the bismuth line on the gums, which may appear early in treatment and which is not important.

FIGHTING LEPROSY IN DUTCH GUIANA AND THE MOLUCCAS. P. COOL, Nederl. Tijdschr. v. Geneesk. **71**:2453, 1927.

The difficulty of combating a contagious disease among a people who do not believe in its contagiousness is brought out by Cool. In Dutch Guiana costly measures for regulation and isolation have been brought to naught, he states, by the popular disbelief, in which the political classes share. He warns the government authorities against inaugurating the same futile policy in the Moluccas, and urges that the only fruitful field for their efforts in this line is in propaganda for better nutrition and living conditions. The sago palm, "the curse of the Moluccas," is especially mentioned. It provides a one-sided diet that predisposes not only to beriberi, but especially to tuberculous leprosy.

CARPENTER, Chicago.

CONCERNING THE SIGNIFICANCE OF THE BETA RAYS IN THE BIOLOGIC ROENTGEN-RAY ACTION. A. LIECHTI, Acta radiol. **5**:385 (Oct.) 1926.

Following experiments on rabbits with secondary rays from metals, the author attaches extreme importance to the action of beta rays produced in irradiated tissue by roentgen rays, though he says that such rays are of no practical value in increasing the dosage. He concluded that the H-ion concentration of the tissue fluids is increased and that the permeability of semipermeable tissue membranes for cathode rays is also increased.

A CIRCULATING PHYSICAL DEPARTMENT FOR STANDARDIZING THE ROENTGEN-RAY RADIATION USED IN THERAPY. R. M. SIEVERT, Acta radiol. **5**:457 (Oct.) 1926.

As the value of statistical studies in roentgen-ray therapy is dependent on the accuracy of a standardized dosage of roentgen rays, Radiumhemmet of Stockholm has organized a "Circulating Physical Department." The latter consists of a physicist and assistant who visit every hospital twice yearly to carry on control investigations of all factors bearing on the physics of radiation in the individual laboratories inspected.

PHOTOACTIVITY — ANTIRACHITISM. E. REKLING, Acta radiol. **8**:147 (July) 1927.

Experiments on rats showed that there was no relationship between photoactivity and antirachitic properties of cod liver oil and other materials irradiated with ultraviolet rays.

EFFICACY OF DIATHERMY IN ROENTGEN-RAY ULCERS. H. BORDIER, Acta radiol. **8**:189 (July) 1927.

A report is given of an extensive third degree roentgen-ray ulceration of the abdomen occurring several months after treatment of a patient who had a uterine fibroid. The patient was treated by medical diathermy for six weeks, and the ulceration was completely healed in four months .

TREATMENT OF CANCER OF THE BREAST WITH AND WITHOUT SUBSEQUENT ROENTGEN-RAY TREATMENT. D. SCHOUTE and C. ORBAAN, Acta radiol. **8**:239 (July) 1927.

The study comprises the results in two groups of patients who had the breast removed; all were operated on in the hospital of Middleburg, Holland, with the same technic and usually by the same surgeon. After three and five years periods, the group of patients who received postoperative roentgen-ray treatment showed fewer recurrences. Two or three series of roentgen-ray treatments of moderate intensity were carried out, a destructive dosage not being employed.

H. R. FOERSTER, Milwaukee.

DERMATOLOGIC ABSTRACTS

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

COCCIDIOIDAL GRANULOMA IN PENNSYLVANIA. D. RIESMAN and F. E. AHLFELDT, Am. J. M. Sc. **174**:151 (Aug.) 1927.

Riesman and Ahlfeldt report what is said to be the first case of coccidioidal granuloma reported in Pennsylvania. The patient was an American boy, aged 5 years, who had lived in the East all his life with the exception of a two months' visit to New Mexico. Eighty-seven cases already on record are summarized briefly.

Osteosclerotic Anemia Secondary to Epidermoid Carcinoma. G. Y. Rusk and W. L. Miles, Am. J. Path. **3**:289 (July) 1927.

Rusk and Miles report a case of epidermoid carcinoma probably arising in the skin over the left malar region and giving metastases to the lungs and to the skeletal system. These metastases came by way of the blood stream and, in the case of the bones, lodged first in the red marrow and then by extension involved the cortical bone and periosteum. The peculiar type of anemia produced is the result of widespread destruction of the marrow.

Multiple Hemorrhagic Sarcoma of Kaposi. D. S. Meyers and V. C. Jacobson, Am. J. Path. **3**:321 (July) 1927.

Meyers and Jacobson report a case of "multiple hemorrhagic sarcoma of Kaposi," in a man, aged 82, who had had the condition at least three years. The history and clinical observations are in agreement with most of the recorded cases. Careful histologic study of the lesions indicates that the condition is probably one of multiple hemangiomatosis with a fibrosarcomatous change in the stroma of many of the tumor nodules.

Cytology of Molluscum Contagiosum. E. W. Goodpasture and H. King, Am. J. Path. **3**:385 (July) 1927.

The observation of Lipschütz that epithelial cells in the lesions of molluscum contagiosum contain myriads of minute bodies morphologically consistent with a filter-passing micro-organism has been confirmed by Goodpasture and King. These bodies are not derived from extruded nucleoli or from any formed cytoplasmic constituent. Mitochondria are neither involved in their formation nor destroyed by the changes in the cell associated with the presence of the minute bodies. The minute bodies develop about and later within cytoplasmic vacuoles which may be regarded as the cellular response to the presence of a living foreign body. The view is expressed that these elementary bodies of Lipschütz may be the virus and the etiologic agent of molluscum contagiosum.

Coexistence of Syphilis and Pulmonary Tuberculosis. C. C. Habliston and W. O. McLane, Jr., Am. Rev. Tuberc. **16**:100 (July) 1927.

Habliston and McLane report the coexistence of syphilis and pulmonary tuberculosis in 14.2 per cent of patients treated in the Tuberculosis Department of the Baltimore City hospitals. Syphilis, as a latent condition, has shown little effect on the course of pulmonary tuberculosis, the results obtained being comparable with those in patients with nonsyphilitic tuberculosis. Syphilis as an active disease has shown a decidedly unfavorable influence on the course of pulmonary tuberculosis, the death rate being higher than in any other class of patients treated in the hospital. Beneficial effects of treatment with arsenicals have been secured without untoward effect on the tuberculous disease. By their use in cases of pulmonary tuberculosis associated with active syphilis a decline of 14.5 per cent in the mortality and an increase of 9.8 per cent in improvement were noted.

Administration of Tartar Emetic by Various Routes. H. P. Smyly, Ann. Trop. Med. **21**:171 (July 22) 1927.

Experiments are reported by Smyly designed to determine the best method of administering antimony and potassium tartrate to infants in whom intravenous therapy is found to be impossible. Rectal administration fails because antimony is absorbed in insufficient quantities, which may have the result that the infecting *L. donovani* become antimony resistant. Intramuscular injection is painful and invariably produces necrosis. Intraperitoneal injection in very dilute solutions with physiologic sodium chloride solution is but slightly irritating, and has been successfully used in the cure of a case of kala-azar in an infant, aged 6 months, whose case is reported in detail.

TULAREMIA IN ARKANSAS. S. C. FULMER, Arkansas M. S. J. **24**:61 (Aug.) 1927.

Eighteen cases of this disease are now recorded from Arkansas. Fulmer reports one of them. All the patients gave the history of handling rabbits. The incubation period was from two to five days; all were of the glandular type. In all except one the initial lesion was on the hands. The mother reported that some bile from the rabbit's gallbladder was accidentally introduced into her boy's eye. The course of the disease was not unusual in any other particular. In these eighteen cases there was only one death. The patient died on the twelfth day of illness with symptoms characteristic of general peritonitis.

MYCOTIC WARTS. A. P. CHAVARRIA and P. G. SHIPLEY, Bull. Johns Hopkins Hosp. **41**:11 (July) 1927.

Chavarria and Shipley took cultures from warts removed from three persons, members of one family, who became infected, one from another. The cultures yielded a fungus, a nocardia. The lesion would seem to have resulted from direct contact with an infected person rather than indirectly through a vegetable or animal carrier of the micro-organism. In all probability the disease in the first member of this family to be infected was acquired also by contact with a person previously inoculated, since there is a history of a close friendship having existed between the family with which this paper deals and a man and wife who were said to have had "sore fingers." The lesions were treated successfully with an ointment consisting of salicylic acid, 3 grains (0.2 Gm.); mild mercurous chloride, 4 grains (0.25 Gm.); wool fat, 1 ounce (30 Gm.).

EXPERIMENTAL SYPHILIS. VII. A. M. CHESNEY, C. R. L. HALLEY and J. E. KEMP, J. Exper. Med. **46**:223 (Aug. 1) 1927.

Syphilitic rabbits, whether untreated or treated after the ninetieth day of infection, were found by Chesney et al. to be more refractory to subsequent inoculation with the homologous strain of *Spirochaeta pallida* than to inoculation with heterologous strains of the same organism, when clinical criteria alone were employed in judging the outcome of reinoculation. The incidence of second infection with homologous strains was 5.4 per cent, as against 50 per cent with heterologous strains. The resistance which develops in rabbits during the course of a syphilitic infection appears therefore to be strain-specific rather than species-specific. The protection afforded against homologous strains was found to persist for at least as long as six months after treatment was discontinued.

PAUL TEST IN DIAGNOSIS OF SMALLPOX. J. A. TOOMEY and J. A. GAMMEL, J. Infect. Dis. **41**:29 (July) 1927.

In a series of eighty cases of smallpox reported by Toomey and Gammel, forty-five gave positive Paul tests. The authors feel that Paul's test, when present, may be considered pathognomonic of smallpox.

TREATMENT OF FURUNCULOSIS BY DIATHERMY. J. HUNTER, J. Laryng. & Otol. **42**:524 (Aug.) 1927.

Hunter reports the case of a woman who was severely affected with furunculosis at longer or shorter intervals during three years. Both external acoustic canals were vulnerable to attacks. Treatment by diathermy was begun during a most severe attack. The left acoustic canal was occluded, and the pain was most intense. Tin electrodes, 2-2, were held tightly against the ears, and the "heat of toleration" produced. In a minute or two the pain was relieved. Treatment was continued for fifteen minutes. The patient went home and slept

soundly for ten hours. The pillow was saturated with pus when she awoke — the first spontaneous evacuation of pus. No sign or symptom of a furuncle has appeared since the first treatment a year ago. The treatment was continued at intervals for two months to insure immunity.

ACNE VULGARIS. H. H. BAUCKUS, New York State J. Med. **27**:838 (Aug. 1) 1927.

Bauckus regards children displaying unusual activity of the sebaceous glands as potential cases of acne. Washing the face and hands of the young freely with soap and hot water is a good hygienic measure and will prevent a great deal of acne. Children with blackheads ought to be treated for this condition. Physicians should avoid prescribing bromides and iodides to persons having blackheads unless such drugs are absolutely necessary. Combination of various local and of general measures offers the best result in treatment.

SYMPTOMS OF ARSENIC IN DERMATOLOGIC CONDITIONS. B. THRONE, L. S. VAN DYCK, E. MARPLES and C. N. MYERS, New York State J. Med. **27**:757 (July 15) 1927.

Arsenic in pathologic amounts was found by Throne and others in the urine of patients with eczema, scleroderma, leukoderma, psoriasis, Majocchi's disease, pemphigus, motor ocular paralysis and pigmentation. They believe that food contamination and occupational contact are the more frequent sources of the poisoning.

TULAREMIA. H. D. JUNKIN, Northwest Med. **26**:415 (Aug.) 1927 .

Each of the two cases reported by Junkin presented an unusual lesion. In one there was a papular eruption and in the other were subcutaneous nodules resembling sporotrichosis. In the first case, a papular eruption appeared on the fourteenth day and was distributed over the face, forehead, neck, shoulders and anterior surfaces of the legs near the junction of the middle and lower thirds. The papules were red and hard but were not painful, nor did they itch. One papule occurred at the inner canthus of the left eye, causing considerable edema about the eye. The eruption remained for twelve days, disappeared for about a week, and then reappeared. The second appearance was much less marked than the first and disappeared by the third day. In the second case the infection entered through an abrasion located on the palmar surface of the distal phalanx of the third finger of the right hand. Twelve subcutaneous nodules about the size of peas appeared on the seventh day of illness, distributed along the course of the vessels on the anterior surface of the right arm and forearm.

TREATMENT OF CHANCROIDS AND OTHER LESIONS WITH AMMONIACAL SILVER NITRATE AND LIQUOR FORMALDEHYDI. P. G. WHITE and J. Q. OWSLEY, U. S. Nav. M. Bull. **25**:619 (July) 1927.

Twenty-five patients with chancroid were treated by White and Owsley at the Norfolk Naval Hospital with silver nitrate in liquor formaldehydi. The average length of time required for complete healing was from ten to fifteen days, as against from one month to three months under other methods of treatment. The solutions used were a saturated solution of silver nitrate crystals in 28 per cent ammonia, and 25 per cent solution of liquor formaldehydi, and pure oil of eugenol, each solution being applied in the order mentioned.

BLOOD CHEMISTRY STUDIES IN LEPROSY: II. ALKALI RESERVE. E. M. PARÁS, Philippine J. Sc. **33**:155 (June) 1927.

The Van Slyke determination of carbon dioxide capacity was performed by Parás on twelve specimens of blood plasma from healthy subjects and in

110 cases of leprosy. The readings obtained for normal nonlepers range from 60 to 78 per cent by volume. Uncomplicated leprosy is not accompanied by any significant change in the alkali reserve. Determination of alkali reserve, in connection with alkali therapy, is evidently important in lepra reaction, and is valuable in the study of nephritis among lepers. No correlation can be traced between the alkali reserve and the duration, type and advancement of leprosy, or the antileprosy treatment.

BIOCHEMISTRY OF HAIR: 1. CALCIUM CONTENTS. K. IKEUCHI, J. Oriental Med. **7**:1 (July) 1927.

Ikeuchi asserts that the calcium content of hair is in close relationship to the pigment content. In growing human hair the calcium content is between 0.026 and 0.074 per cent; in adults it varies between 0.032 and 0.157 per cent, being higher in women than in men. The percentage is lower in the aged and in white haired persons.

DICK TEST. J. C. J. MCENTEE, Brit. J. Child. Dis. **24**:91 (April-June) 1927.

Because it is not reliable, McEntee says that the Dick test, though helpful, is not alone a guide to diagnosis. The skin reaction is not proportional to the amount of toxin injected. This may indicate the widely different degrees of natural immunity or the extreme sensitivity of the test. A different and more accurate means of standardizing scarlatinal toxin must be devised. Further investigation is imperative to determine the varieties of toxic products of true scarlatinal streptococci, to solve the aberrant forms of scarlet fever, and to explain the apparently anomalous results of the Dick test.

CALCIFIED FIBROMA OF HAND. J. H. MATHER, Brit. J. Radiol. **32**:251 (July) 1927.

Mather's patient presented a sessile tumor the size of a small orange on the palm, at the bases of the index and middle fingers. It was uniformly hard and not attached to bone, or to skin except at the summit, where is was discharging superficially. The roentgen ray showed the tumor to consist mainly of irregular masses of calcareous material. It was probably in the nature of a fibroma undergoing calcareous degeneration. At operation the tumor was found to be attached to the deep palmar fascia.

ETIOLOGY OF PELLAGRA. W. SUSMAN, Edinburgh M. J. **34**:419 (July) 1927.

In cultures from four cases of pellagra, Susman has obtained an anaerobic bacillus that stained readily with aniline dyes, giving a coccal or diplococcal appearance, but in Loeffler's methylene blue preparations a bacillary form was evident, with deeply staining polar structures which occasionally caused bulging. The bacillus is gram fast but not to any degree acid fast. The organism was propagated through four subcultures over about three months. Agglutination reactions with dilutions up to 1:640 gave positive results on two different occasions.

TEMPORARILY POSITIVE BORDET-WASSERMANN REACTIONS IN LATE SYPHILIS. A. SEZARY ET AL, Presse méd. **35**:833 (July 2) 1927.

Positive Bordet-Wassermann reactions in patients with syphilis of long standing were met with by Sézary, Pernet and Gallerand in forty-one of 1,000 cases, examined from three to six times a year. In general, the seroreaction of the patients, taken as a whole, was longer negative than positive. The positive reactions are produced either spontaneously, or after a complete series of arsenic or bismuth injections, before which the serum was normal. These fleeting positives are often observed in syphlitic patients suffering from an active visceral lesion in which the causal influence of syphilis must be con-

sidered. One fact proves that these temporarily positive reactions are connected with an unextinguished syphilis; thirty-four of the forty-one patients had received insufficient treatment; some none at all. The value of a negative Bordet-Wassermann test is relative. In two thirds of the cases the authors were able, through treatment, to bring the seroreaction to normal.

FEVER IN CONGENITAL SYPHILIS. G. VERROTTI, Policlinico **34**:1027 (July 18) 1927.

Verrotti's observations show that protracted fever may be due to congenital syphilis. It may be mistaken for malta fever, tuberculosis, malaria or intestinal infection. The fever may occur comparatively late in life.

TAR EPITHELIOMA. E. P. LASNIER, An. de Fac. de med. **12**:1 (Jan.-Feb.) 1927.

Of forty-two rabbits treated by Lasnier with tar, according to Itchikawa's technic, all developed tumors. Only one (3.12 per cent), however, showed clinical and histologic characteristics of malignancy. Ten rabbits of the last series now have papillomatous growths, but it remains to be seen whether the nature of the tumors will change. In many cases of alleged spontaneous cure of tar cancer, the malignancy may be apparent, not real. Scarifications cause cancerization, but only at a certain stage of the hyperkeratosis. It is difficult to determine when this special moment has arrived.

ABUSE OF HYPODERMIC INJECTIONS. J. DE MENDONÇA, Brasil-med. **41**:693 (July 9) 1927.

Mendonça has seen a number of cases of sclerosis, cyst, scar tissue and even rebellious sinus following the indiscriminate use of hypodermic injections. Insoluble drugs and all agents liable to necrose tissue should be excluded from hypodermic use. Strict asepsis, avoidance of repeated injections in the same area and waiting until disappearance of irritation symptoms before repeating an injection should never be neglected. In thin persons, the needle should be at least 3 cm. long, and in fat patients, at least 5 cm.

INFECTIOUSNESS OF SYPHILITIC CADAVER. E. ZURHELLE and R. STREMPEL, Arch. f. Dermat. u. Syph. **153**:219 (April 23) 1927.

The possibility of infection with syphilis by the cadaver was demonstrated experimentally by Zurhelle and Strempel up to four days. The time would be longer in cadavers kept on ice, since decomposition tends to destroy the spirochetes. The virus may become attenuated and lead to symptomless infection, but the attenuation is not maintained in further inoculations.

EXTRACT OF SPIROCHETES AND IMMUNE SERUM. F. KLOPSTOCK, Deutsche med. Wchnschr. **53**:1261 (July 22) 1927.

Klopstock returns to Wassermann's original opinion as to the specificity of the Wassermann reaction. Injection of killed cultures of *Spirochaeta pallida* induces an abundant production of "lipoid" antibodies.

NERVE DIVISION AND CANCER. N. N. SSOKOLOW, Deutsche Ztschr. f. Chir. **202**:270 (May) 1927.

In twenty-two cases of squamous cell carcinoma (mostly of the skin) Ssokolow performed Molotkoff's division of the sensory nerves supplying the region. In two cases the operation was followed by disappearance of the cancer; in the others there either was no change or the rate of growth and the malignancy increased. The cures, one of which is of two years' standing, were, perhaps, in Ssokolow's opinion, spontaneous cures. Molotkoff's theory of the neuritic origin of cancer was not confirmed.

PSORIASIS AND BLOOD GROUP. A. POEHLMANN, München. med. Wchnschr. **74**:1180 (July 15) 1927.

In 100 patients with psoriasis, Poehlmann found blood group O in 54 per cent, A in 28 per cent, B in 13 per cent and AB in 5 per cent as against 41.5; 42.3; 10.18, and 6 per cent, respectively, among the general population of Munich.

ERYTHEMA NODOSUM. R. MASSINI, Schweiz. med. Wchnschr. **57**:708 (July 23) 1927.

A virus as the causative agent of the disease has not been found, nor can the etiology be established with certainty from the clinical manifestations, but Massini's researches support the idea of a relationship to tuberculosis.

RADIUM TREATMENT OF CANCER. O. SCHURCH, Schweiz. med. Wchnschr. **57**:761 (Aug. 6) 1927.

Schurch believes that it is usually best to use radium and radium emanation side by side. The Shuys method, which employs only beta rays, is, he says, of no practical importance.

SKIN DISEASES. J. ALMKVIST, Acta derm.-venereol. **8**:91 (June) 1927.

Almkvist's investigations show that certain pathologic causes may lead to leukoderma at sites where cutaneous changes have occurred, because of the destructive action of their toxins on the pigmentary process. Certain cutaneous infiltrations, due to purely infiltrating cells, at the period of regression lead to a melanoderma, resulting from the destruction of these cells. Such processes are not specific and may occur in various affections.

INCIDENCE OF SYPHILIS AT SHANTUNG CHRISTIAN UNIVERSITY DISPENSARY. L. F. HEIMBURGER, China M. J. **41**:541 (June) 1927.

The incidence and types of syphilis as seen among 2,000 consecutive cases of undoubted syphilis are discussed by Heimburger. The Wassermann reaction was positive in 92.5 per cent and doubtful or negative in 7.5 per cent. The 2,000 cases represent 5.7 per cent of the total number of new patients admitted to all departments of the outpatient departments, over the same period of time. These cases represent 27.5 per cent of the total number of new patients visiting the dermatologic clinic in a similar period. Among this group of cases 1,511 were male and 489 were female.

BLOOD AND SPINAL FLUID OBSERVATIONS IN HEREDITARY SYPHILIS. T. IIZUKA, Oriental J. Dis. Infants **2**:137 (April) 1927.

In 63 per cent of fifty-two cases of hereditary syphilis, Iizuka found a considerable reduction in the number of erythrocytes and a relative change in 85 per cent, in which there was also a reduction in the number. The hemoglobin percentage was lowered absolutely in 73 per cent and lowered relatively in 94 per cent.

Society Transactions

BROOKLYN DERMATOLOGICAL SOCIETY

Regular Meeting, May, 1927

JOHN C. GRAHAM, M.D., *Chairman*

SYPHILITIC REINFECTION. Presented by DR. CHARGIN.

A. M., a man, aged 25, unmarried, American born, a driver, appeared at the clinic on Aug. 24, 1922, with a sore in the coronary sulcus at the frenum. The dark-field examination was positive. Clinically, the lesion was a chancre. The Wassermann reaction was negative. Treatment, instituted at once, consisted of twelve injections of arsphenamine during a period of six weeks, the first four injections being given during the first eight days. Subsequent to that, the injections were given every week. Four Wassermann tests during the course of treatment proved negative. Twelve subsequent Wassermann tests, the last one on April 9, 1927, proved negative. He had suffered from herpetic lesions on the penis. Repeated exposure was admitted by the patient. Early in April, 1927, two papules appeared on the penis which became somewhat indurated. The dark-field examination of these lesions was positive, on May 5 and on May 14. The Wassermann reaction on May 5 was three plus. On May 14, secondary eruptions, maculopapular in character, appeared. Typical adenopathy was present.

DISCUSSION

DR. CHARGIN: This case is of interest for two reasons. In the first place, it fulfils the requirements of a reinfection; in the second place, it demonstrates that patients with syphilis can be cured by any method of intensive therapy if treatment is instituted early; that is, soon after the infection and before the Wassermann reaction becomes positive. On April 9, 1927, the patient came to the clinic presenting two small papules on the penis, one of which was somewhat indurated. *Spirochaetae pallidae* were readily found by the dark-field method. This observation was confirmed on the following day. At this time, he had an adenopathy but no secondary manifestations. The Wassermann test on April 9, 1927, was negative. On May 5, 1927, the secondary eruption had not appeared, but the Wassermann test was three plus. On May 14, the patient appeared with typical maculopapular syphilids. The usual requirements of reinfection, therefore, were fulfilled.

DR. BEST: I think this patient simply demonstrates the laws of infection and immunity. He had had treatments prior to the secondary stage and positive Wassermann reaction, by which time the immunity process had not had time to work; therefore, he did not establish immunity against this disease. The disease was eliminated from his system by treatment and not by immunity. As a result, when there was a second infection, he was not immune and so became infected.

DR. ABRAMOWITZ: From a clinical standpoint alone, the patient now shows a typical chancre and secondary rash. The history of the previous infections is also definite. The spinal fluid observations are absent. With the exception of this, the evidence points to a reinfection.

DR. GAUVAIN: I agree with Dr. Chargin's presentation.

DR. CHARGIN: Regarding the question of immunity in syphilis, I do not think that immunity in syphilis should be spoken of in the same sense that it is spoken of in scarlet fever or diphtheria. A person who has had scarlet fever or diphtheria is not reinfected because that patient has developed immunity as a result of having had the disease, while a person who has a history of syphilis cannot be reinfected, not because he is immune, but because he still harbors the old infection.

ACRODERMATITIS CHRONICA ATROPHICANS. Presented by DR. BERKOWITZ.

F. L., a woman, aged 40, married, born in Russia, had two children living and well. There was no history of illness, except the eruption for which she was presented. The duration of the eruption was twenty years. There was, at first, an evanescent generalized eruption, followed by erythema on the right knee; this eruption gradually extended upward and downward. On the dorsa of the hands were areas that were shiny, dark reddish blue and irregularly outlined, with fine scales. Delicate wrinkles were present which resembled cigaret paper. The eruption extended upward on the forearms and arms, and to within 3 (7.6 cm.) or 4 (10.1 cm.) inches of the shoulder joint. The discoloration seemed to be less marked as it approached the shoulder. Over the upper part of the chest there was an irregular area about 3 inches (7.6 cm.) in diameter, reddish with less of the bluish tinge, showing the same characteristics as the hands but less marked. Both breasts showed a similar condition beginning near the nipples and spreading outward. The right foot, knee, leg, thigh and buttocks showed the same condition as the hands, especially marked on the knee, although the color was more of a dusky reddish blue, and the wrinkling and thinning of the skin was much more pronounced. The superficial venules were prominent. The wrinkling and discoloration extended up to and included the lower half of the buttocks. The right leg and thigh presented the same condition, though not so marked or extensive. The dorsum of the right foot showed a similar condition, though not so pronounced as the leg and thigh. The dorsum of the left foot showed a lessened erythema with a slight wrinkling, apparently the same condition. The chin showed the same condition. The patient said that in cold weather the extremities became cold and blue. There was no pain, numbness or discomfort in the extremities. The patient had recently complained of dizziness, frontal headache and itchy scalp.

HEMANGIOLYMPHANGIOMA (?). Presented by DR. BERKOWITZ.

B. G., a girl, aged 10, born in the United States, whose father and mother were living and well, had had the usual illnesses of childhood, and gave no history of hemorrhages, though she had had a tonsillectomy three years previously. The upper surface of the tongue showed numerous scattered conical lesions resembling enlarged papillae. These were elevated about one sixteenth of an inch (0.16 cm.) and apparently filled with blood. Some of these lesions had whitish tops, especially those on the outer borders of the tongue. Some were in groups of two or three, while most were discrete. The under surface of the tongue showed two irregular patches of grouped lesions about one-half inch (1.27 cm.) long by one-quarter inch (0.63 cm.) wide, one on each side of the frenum and several discrete lesions along the rest of the tongue. The

only symptoms complained of were occasional slight bleeding and sometimes sore mouth. The disease was of four months' duration.

DISCUSSION

DR. CHARGIN: I think that surgical measures would probably give the best results in this case. It seems to me that if the growth has shown such marked activity during the past four months that it is likely to continue to grow, and surgical intervention is therefore indicated.

DR. ABRAMOWITZ: It seems to me that this is a hemolymphangioma which possibly extends deep down into the tissues of the tongue. A hemorrhage may result from treatment; however, cauterization might be tried. I would treat a few of the vesicles at a time to see how they react. After that the hemangiomas could be treated.

DR. WALZER: These lesions are not two distinct types of lesions. They are all lymphangioma, with a mixture of blood.

DR. ABRAMOWITZ: I disagree with Dr. Walzer. There are separate bluish-red lesions. The fact that they bleed also connotes to me that they are hemorrhagic in character. I agree with Dr. Berkowitz in the diagnosis as presented.

ERYTHEMA INDURATUM (BAZIN). Presented by DR. BEST.

W. L., a woman 30, unmarried, a school teacher, about twelve years previously developed nodules on both lower extremities between the knees and ankles, which slowly increased in size, some reaching the size of a walnut. The skin over the nodules was red and shiny. After several months the lesions would soften and discharge, leaving sluggish ulcerations which, after several months, would heal. These lesions appeared from time to time for about two years, after which the patient apparently recovered. About five years later the condition recurred, and while she had been free from lesions for several months at a time, they had been appearing at intervals for five years, becoming more numerous and persistent during the year before presentation. There had not been a history of tuberculosis in the family. The father died of general paralysis. The mother died from cerebral hemorrhage. There were numerous scars between the knees and ankles, at sites of the old healed lesions. About a half dozen subcutaneous nodules, varying in size from that of a bean to that of a walnut, were present. Two of the larger nodules showed ulcerations with discharging sinuses. The Wassermann test was negative. There was no evidence of pulmonary, bone or glandular tuberculosis.

DISCUSSION

DR. ABRAMOWITZ: At the last meeting of the Academy of Medicine Section, Dr. Bechet presented a few cases of erythema induratum in which the patients were cured with gold and sodium thiosulphate. I think the members of this society should try the treatment with gold not only in lupus erythematosus, but in all forms of tuberculids and tuberculosis of the skin. They may find it beneficial.

DR. WALZER: We have treated two patients who had erythema induratum with injections of neoarsphenamine, and we have practically cured them. Both patients were women, and the condition was of long duration.

DR. CHARGIN: It is my definite impression, gained from a considerable experience with various methods of treating patients who have Bazin's disease, that no treatment is so effective as rest in bed with the legs in the raised position. In regard to the use of the gold preparations in tuberculosis, the reports are not favorable. In view of this, it is interesting to hear Dr. Abramowitz' results with gold preparations in Bazin's disease. In this connection, a recent experience may be of interest. A patient who presented a generalized psoriasis and lupus erythematosus of the face was given injections of a gold compound for the latter, in addition to ultraviolet radiation for the psoriasis. After a period of four or five weeks, improvement was noted in the lupus erythematosus, but a more marked improvement in the psoriasis, which practically cleared up during the period.

DR. ABRAMOWITZ: Rest in bed is helpful, but it is frequently impossible to carry out this treatment.

DR. BEST: My impression of this patient is that when she rested she improved. In addition to the rest, arsenic helped to build up her constitution. For five years she was free from this condition. During this period, she was inactive; as soon as she started teaching and was standing on her feet a good deal, the recurrence resulted. This would indicate that rest is important as a factor in the cure of this condition. As Dr. Abramowitz pointed out, it is not, however, a good method of treatment, since the disease recurs as soon as conditions are changed. But what assurance have we that arsenic, in the form of arsphenamine or gold, is any better, if there are recurrences even after these treatments are used?

LUPUS ERYTHEMATOSUS TREATED WITH GOLD. Presented by DR. GAUVAIN.

G. S., a laborer, aged 32, had had a fixed lupus erythematosus of the typical butterfly distribution for six years, during which time he had received various kinds of treatment without avail. He had also had six attacks of facial erysipelas which had had no effect on the lupus erythematosus. Previous to presentation, he had received seven injections of 50 mg. of a gold compound, given at three day intervals, with the result that the centers of the lesions had undergone involution, leaving only the peripheral erythema and scaling which had also markedly diminished.

DISCUSSION

DR. CHARGIN: I had an interesting experience with gold therapy in a case of lupus erythematosus. A patient suffering from the disease for many years developed a severe generalized, bullous, erythema multiforme-like eruption after four injections of gold and sodium thiosulphate. In the course of weeks, the eruption disappeared; the lupus erythematosus also almost completely disappeared. Several months later, there was a slight recurrence of the lupus erythematosus. Gold therapy was resumed, and despite six full doses to date, a generalized reaction has not taken place. One may therefore conclude that a former severe reaction does not necessarily contraindicate further treatment with the drug. The statement that small doses of gold give as good results as large doses is perhaps not entirely true. In my experience, in order to obtain good results, it is necessary to give a dose large enough to produce a focal reaction.

E. A. GAUVAIN, M.D., Secretary.

ST. LOUIS DERMATOLOGICAL SOCIETY

Regular Meeting, May, 1927

R. F. DAVIS, M.D., *in the Chair*

A CASE FOR DIAGNOSIS. Presented by DR. SEALE. (From the Barnard Free Skin and Cancer Hospital, service of Drs. Engman and Mook.)

A. K., a white girl, aged 4 years, three months prior to presentation developed a pustule on the dorsal surface of the third right finger which was cauterized by a physician. Since then numerous beadlike lesions and infected nodules had appeared along the forearm, arm and axilla. The child had been playing with a rabbit at the time the primary lesion occurred. The animal died suddenly one month later. The child had had no systemic symptoms.

At presentation, a bright red lesion the size of a bean was observed on the dorsal aspect of the third right finger, slightly infiltrated and scarred on the surface. The right epitrochlear glands were also involved, some of them merely enlarged; others were fluctuant, and some showed scarring from previous incisions. Attempts to culture the pus were unsuccessful, and guinea-pig inoculation was without results. Agglutination for tularemia was made, but was found negative.

DISCUSSION

DR. LANE: When first observed in the clinic, two conditions were considered, tularemia and sporotrichosis. The definite history of the child having played with a rabbit which later died suddenly suggested infection with *Bacillus tularensis*. Contradictory facts were the absence of fever or constitutional symptoms; also that domestic rabbits have never been known to have had this disease. Sporotrichosis seems to be the more logical condition. There is a definite primary lesion on the finger with the presence of nodules following the course of the lymphatics, and no subjective symptoms. Cultures from the pus have been made, but it is too early to expect the development of the sporothrix.

DR. DAVIS: How long did the treatment with potassium iodide last?

DR. SEALE: Three days only, after cultures had been taken.

DR. TOBIAS: The lesions impressed me as being of infectious origin, probably mycotic. The painless nodules along the course of the forearm and arm and the masses in the axillae strongly suggest *Sporothrix* infection.

DR. GRINDON: Clinically it has all the characteristics of sporotrichosis.

SYPHILIS. Presented by DR. SEALE. (From the Barnard Free Skin and Cancer Hospital, service of Drs. Engman and Mook.)

W. N., white, aged 23, a chauffeur, had had a primary lesion on the penis two months before presentation, which disappeared in five days following an injection of neoarsphenamine. Ten days before presentation, he entered the clinic presenting a dactylitis of the third and second finger on the left hand. On the palmar surface of both hands there were several purplish-red, subcutaneous, indurated nodules the size of a large pea. The patient had no secondary eruption although there was a slight scaliness of the palms and soles apparently resulting from the neoarsphenamine. His Wassermann reaction was four plus in both antigens, and the lesion regressed under treatment with mercury and potassium iodide.

DISCUSSION

DR. LANE: I think this is a case of early syphilis with unusual manifestations. The patient has been a chauffeur which may account for the limited distribution to the palms — syphilids are prone to develop at sites of trauma and irritation, although the lesions are typical nodules and cannot be grouped with any of the usual early secondary lesion. Nevertheless, the definite history of infection, the time of the appearance of the lesions, and the fact that they rapidly disappeared under antisyphilitic treatment, point to a diagnosis of early syphilis.

LUPUS ERYTHEMATOSUS. Presented by DR. SEALE. (From the Barnard Free Skin and Cancer Hospital, service of Drs. Engman and Mook.)

F. C., a boy, white, aged 12, who had lupus erythematosus for which he had received 125 mg. of gold sodium thiosulphate during a period of three weeks with definite improvement, was presented. F. G., a man, white, aged 40, received 350 mg. of the same drug for the same condition during a period of four weeks, with corresponding good results.

DISCUSSION

DR. SEALE: Neither of these patients showed any unfavorable reaction.

DR. GRINDON: These two cases are interesting. With regard to the reaction, I had a patient to whom I gave 0.5 decigram without reaction. A week later I gave 1 decigram. The woman telephoned me today that she had been ill ever since and unable to be out of bed. She was to have appeared before this Society.

A CASE FOR DIAGNOSIS. Presented by DR. SEALE. (From the Barnard Free Skin and Cancer Hospital, service of Drs. Engman and Mook.)

M. M., a woman, white, aged 46, two months after an abdominal operation (uterine) noticed three small subcutaneous nodules which progressed in size and became confluent. On the medial surface of the left leg on the junction of the lower and middle third there was an indurated mass, 15 by 8 cm. It was hard and could be picked up between the fingers. The skin at this site was dark red. There was no fluctuation, and it caused but slight discomfort. The patient also had a mild ichthyosis.

DR. GRINDON: As to a suggestion of scleroderma, the common type begins without edema, but even in the latter condition acute inflammatory infiltration does not occur as in this case. The early acute type of scleroderma attended with edema is more generalized.

DR. DAVIS: It seems to me to be a sharply defined localized area which suggests erythema induratum or phlebitis.

A CASE FOR DIAGNOSIS. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Drs. Engman and Mook.)

E. E., a woman, white, aged 37, gave a history of raised lesions which appeared on the body at various times for the past seven years, always remaining the same as at their onset. They did not cause subjective symptoms. At presentation discrete nodules were seen irregularly distributed over the body, the scalp, left arm, buttocks and both lower extremities, varying in size from that of a split pea to that of a small butterbean and in color from pale pink

to dark red. They were hard but not painful, and were situated in the skin. One lesion was removed for microscopic examination, report on which is forthcoming.

DISCUSSION

DR. ENGMAN: I think this is a type of sarcoid.

DR. GRINDON: I agree with Dr. Engman. In its color and feel it is like the Boeck type of sarcoid.

PEMPHIGUS VULGARIS. Presented by DR. SEALE. (From Barnard Free Skin and Cancer Hospital, service of Drs. Engman and Mook.)

W. A., a man, white, aged 59, was presented before this Society three months ago, at which time symptoms of both erythema multiforme bullosa and pemphigus vulgaris were noted. Later the case took on the true aspects of pemphigus vulgaris. In the meantime, however, the patient had grown progressively worse. Crops of new bullae appeared daily and his temperature ranged from 101 to 103 F. He was then given an injection of 1.5 cc. of coagulin subcutaneously and 1 grain (0.065 Gm.) of iron cacodylate intravenously every other day until fifteen injections of each had been given. He grew progressively better and treatment was discontinued two weeks ago. His temperature has now been normal for three weeks, and no new lesions have appeared.

DISCUSSION

DR. ENGMAN: We have a case now at Barnes Hospital similar to this case just shown by Dr. Seale, in a woman probably 50 years of age. At the beginning we thought it was a case of bullous erythema multiforme. Then it changed in some few months to a typical dermatitis herpetiformis. Under treatment with arsenic the lesions cleared up. The patient went home, then returned after some months with dermatitis herpetiformis with bullae. At this time she had an acute reaction to arsenic. At the site of the patches, there were groups of bullae, and, especially where they ran together, they became thickened patches of skin deeply pigmented. I saw her three weeks after the recurrence of the condition, and I was struck with the infiltration of the patches. I thought then that they might be the beginning of a mycosis fungoides. Three or four days after this, she had another acute outbreak of bullae, flaccid, in groups, and superficial like those of the pemphigus foliaceus. They broke quickly and the patient is in this condition now, although she is seemingly perfectly well, that is, she has no symptoms other than those of the skin.

NORMAN TOBIAS, Secretary.

NEW YORK ACADEMY OF MEDICINE, SECTION ON DERMATOLOGY AND SYPHILIS

Regular Meeting, May 3, 1926

M. B. PAROUNAGIAN, M.D., *Chairman*

CASES SHOWING THE RESULTS OF TREATMENT WITH GOLD AND SODIUM THIOSULPHATE IN LUPUS ERYTHEMATOSUS. Presented by DR. BECHET. (From the Service of Dr. H. H. Whitehouse, Skin and Cancer Hospital.)

CASE 1.—A woman, aged 40, had had lupus erythematosus of the nose of thirteen months' duration; she received fifteen injections of gold and sodium thiosulphate from Jan. 6 to April 28, 1927.

CASE 2.—The patient had had lupus erythematosus of the face and scalp of two years' duration; eight injections of gold and sodium thiosulphate had been given from March 15 to April 26, 1927.

CASE 3.—The patient had had lupus erythematosus of the face of six months' duration; twenty-six injections of gold and sodium thiosulphate had been given from Jan. 13 to April 30, 1927.

CASE 4.—The patient had had lupus erythematosus of the face, ears and chest of one year's duration; eighteen injections of gold and sodium thiosulphate had been given from April 2 to April 26, 1927.

CASE 5.—J. O., a boy, aged 16, had lupus pernio of the right ear of three years' duration; fifteen injections of gold and sodium thiosulphate had been given from March 1 to April 29, 1927.

CASE 6.—Sarah W., aged 20, had had erythema induratum of three years' duration and papulo-necrotic tuberculid of the fingers of one year's duration; she had received 24 injections of gold and sodium thiosulphate from Nov. 20, 1926, to April 24, 1927.

CASE 7.—A man, aged 50, had had lupus erythematosus of the entire face with roentgen-ray dermatitis of thirty years' duration; he had been given thirty injections of gold and sodium thiosulphate.

These patients comprised a small number of those asked to present themselves; some with more striking results had failed to appear. All those present had improved markedly under treatment.

Patient 6 was entirely well; this girl had had a severe type of erythema induratum and numerous large lesions of papulo-necrotic tuberculid on the hands. Both dermatoses had entirely disappeared after twenty injections.

Practically the entire face of the seventh patient was covered with an old, infiltrated, angry red lupus erythematosus of thirty years' duration. After thirty injections, there were many large areas of healthy skin, the boardlike infiltration had entirely disappeared, and the remaining active points of lupus erythematosus were a pale pink. His general health had also markedly improved. Several of the other patients were almost well.

DISCUSSION

DR. VAN DYKE: Within eight months there have been over 100 patients under this treatment at the Skin and Cancer Hospital. I have given over 1,000 intravenous injections of the gold preparations without fatal reactions and with few serious ones. There have been apparent cures in about 60 per cent of the cases.

DR. ABRAMOWITZ: Altogether I have treated three patients with gold thiosulphate. One patient with a very severe lupus vulgaris was presented as cured at the March meeting of this year. Another patient with an extensive lupus erythematosus of the scalp also was entirely cured, although a general lichenoid dermatitis with lesions in her mouth developed during the course of the treatment. The toxic eruption disappeared in about two weeks. The third patient is now under treatment for Bazin's disease of the legs, of a rather severe type. The lesions failed to respond to treatment with arsephenamine, ultraviolet radiation and the roentgen ray. He is now more than 50 per cent improved, after five weeks of treatment with the gold thiosulphate. It seems that this gold compound is often effective in tuberculous lesions of the skin, even though, judging from most of the reports in the European literature, it often fails in systemic tuberculosis.

DR. ELLER: It is particularly gratifying to hear that tuberculosis of the skin also responds to treatment with the gold solution, for the reports thus far have not been good for this condition. I was glad to see the splendid results obtained in this case of erythema induratum.

DR. ROSTENBERG: I have treated four patients with gold, first with 4 amino-2 auro-thiophenol carbonic acid and then with the gold thiosulphate. One patient was entirely cured and the others are still under treatment, but greatly improved. The patient who was cured had lesions on both hands of the lupus tumidus variety, which were painful and incapacitated her for work. She also had patches on the scalp with loss of hair. The hair is now coming back. I believe that in gold preparations a most valuable remedy in the treatment of lupus erythematosus has been found.

DR. HOPKINS: I am very much interested in this report. I have presented six cases in which the patients had been treated with amino auro thiophenol carbonic acid, and in some of these the results were very satisfactory. The condition in one mild case has practically cleared up without any trace of the disease; other patients have not reacted so well, and certainly there have not been any such results as Dr. Bechet reports. In handling amino auro thiophenol carbonic acid I have felt that I was handling dynamite; some severe reactions have been reported in cases in which the dose was not kept small—severe actions and generalized dermatitis. I was much interested to hear that Dr. Bechet is using such large doses. Was any lighting-up noted in other latent tuberculous processes?

DR. COMBES: Did Dr. Bechet observe any local reactions around the lesions, following the injection of gold? Two or three of my patients had a transient erythema on the following day. I have seen this with lupus vulgaris; the reaction was somewhat similar to what is seen following injections of tuberculin in tuberculosis.

DR. BECHET: I have frequently observed an increase in the inflammatory process in the lesion after several injections of gold thiosulphate. The local reaction is apparently followed by a more rapid subsidence of the lupus erythematosus than in those cases in which it is lacking. There can not be any question of the great value of this remedy in lupus erythematosus. In none of my cases did it fail to cause a marked improvement in the lesions. In a number of cases of several years' duration, the lesions entirely disappeared. In two cases of erythema induratum and in one case of papulonecrotic tuberculid the patients were entirely cured; one of these patients had received sixteen tuberculin injections without benefit. Another patient with erythema induratum was greatly benefited after only four injections. There were few reactions. The constitutional reactions were nil in all of my cases after beginning the gold thiosulphate. Prior to that gold protein had been used, and a toxic reaction (chill, nausea, prostration) almost invariably followed.

Replying to Dr. Hopkins: Amino auro thiophenol carbonic acid has caused a few fatalities abroad. Schamberg and Wright report that Stein observed deaths after a few injections. Bruhns had a death forty-four hours after an injection of 0.001 of amino auro thiophenol carbonic acid. I have not had any constitutional reactions from gold and sodium thiosulphate, even when used in doses of 100 mg., twice a week. Schamberg and Wright also failed to observe any marked toxic reactions.

It is yet too early to speak of permanent cures, but an experience of six months with about forty cases has convinced me that gold thiosulphate is the

one remedy which gives the greatest promise of either improvement or cure in this usually intractable disease.

LUPUS MILIARIS. Presented by DR. WEISS. (From the German Polyclinic.)

Mrs. E. I., a Spanish Jewess, gave a negative family and past history. On the face, nose, forehead and chin were numerous lesions underlying the skin, which varied in size from that of a pinhead to that of a pea, and a pinkish erythema, of two months' duration. The patient did not complain of itching and was disturbed only by the appearance. The Wassermann reaction was negative. The results of the roentgen-ray examination of the chest were negative also, except for small calcifications in the root of the lung.

Biopsy revealed tuberculoid granuloma, probably sarcoid.

DISCUSSION

DR. KETRON: The condition appealed to me as being an acnitis, which is classified as one of the tuberculids. Few of these cases are seen in Baltimore. Some years ago, I examined one thoroughly, but was not able to find any tubercle bacilli in the lesions. The case appeared to be characteristic of this disease.

DR. HIGHMAN: The condition appears to me to be a typical example of that type of lupus vulgaris known as miliary lupus, which is not a good name. The lesions are isolated tuberculous papules and histologically have the structure of tuberculosis. They belong to a group of conditions described by Kaposi and Crocker repeatedly as acne telangiectatica, although it is not particularly telangiectatic. Dr. Trimble of New York described a case as acne agminata. There is some resemblance between this and acnitis, but there is no necrosis in the lesions. The patient has lesions on the back of the hands which have never been described in acne telangiectatica.

DR. MALONEY: I agree with the diagnosis of disseminate miliary tuberculosis, or acnitis, which is practically the same thing; the case is early—of only two months' duration—and is in the stage of primary eruption. I think the necrosis which Dr. Highman mentioned will probably develop later. The classification of miliary disseminated lupus is better than acnitis for it fits in better with the cases that Tillbury Fox described under that name.

DR. WISE: We all know what the disease is but we are not agreed on the name. Tillbury Fox described it as lupus follicularis disseminatus facei, which is a better name than acnitis.

DR. POLLITZER: We seem to be agreed that this patient's disease is some form of tuberculosis or tuberculid. To my mind, the lesions do not resemble those of miliary tuberculosis, nor have they the characteristics of the papulonecrotic tuberculid. In the latter condition there is a lesion in the cutis which undergoes necrosis, leading to breaking down of the epidermis and discharge of necrotic tissue and pus and ending with healing and a scar. There is nothing of this kind in the present condition, which has been going on for two months. Moreover, on puncturing the pustular lesions, a drop of clear pus exudes. I should be unwilling the classify this case without further study.

A CASE FOR DIAGNOSIS (DERMATITIS ARTEFACTA?). Presented by DR. TRAUB.

Miss N. T. H., aged 28, born in the United States, gave a negative past history except for pneumonia in 1905 and a vague indigestion which had troubled her since the age of 16. In 1922, she had an attack of cholecystitis

with nausea, vomiting and jaundice. She had had repeated attacks of jaundice since, and was jaundiced when presented. In August, 1918, the patient noticed a small erythematous area over the right tibia. This healed in six months after cauterization and immobilization. About two months after this area resolved, a small lesion appeared over the right internal malleolus, which gradually enlarged until it was from about 2 to 4 inches (5 to 10.16 cm.) in size. Skin grafting was attempted in 1923 and 1924, and in May, 1925, with poor results. In 1920, an ulcerating area developed over the left internal malleolus. An attempt at skin grafting was made in 1923, and the lesion remained healed until 1926, when a slight traumatism again produced the ulceration. The Wassermann test had been repeatedly negative, and roentgen-ray examination of the chest was negative for tuberculosis, as was the physical examination. A biopsy taken from the edge of the ulcer was reported as showing "chronic ulceration." The probable diagnoses suggested were: first, a superficial type of erythema induratum and, second, dermatitis artefacta.

DISCUSSION

DR. ELLER: Whenever an ulcer is seen on the leg one usually thinks of three possibilities—tuberculosis, syphilis and varicose ulcers. In this case syphilis is eliminated on account of the history of nine months' duration in one area, and the absence of lesions elsewhere. In tuberculosis, one would expect satellite lesions and deeper ulcerations. In varicose ulcers, there should be varicose veins. I think that the condition is an artefact.

DR. ROSEN: I think the diagnosis is hysterical mutilation of the leg. The clinical appearance of the ulcer does not resemble any of the granulomas, nor would one suspect a bilateral malignancy. The superficial ulceration with a granulating base, together with the pathologic report of a chronic inflammation, suggests a simple process.

DR. HOWARD FOX: I agree with the diagnosis of self-inflicted eruption, and would like to ask whether the patient has been examined for hysteria.

DR. POLLITZER: I think the diagnosis of an artefact is most probable. That can be determined readily by putting the patient to bed under proper precautions.

DR. NEWMAN: I agree with the others who have spoken. The patient is a young, healthy girl, and the condition should have healed.

DR. TRAUB: A neurologic examination has not been made, but will be later.

A CASE FOR DIAGNOSIS (FIBROMA?). Presented by DR. ROSTENBERG.

Mrs. L. R., aged 42, a Russian by birth, gave a family and previous history which was irrelevant, except for a skin eruption in 1919, for which she stayed several months in Mount Sinai Hospital. She was then suffering from a papulovesicular eruption which was grouped symmetrically over the trunk and extremities. At that time a tentative diagnosis of Duhring's disease was made. The possibility of a drug eruption of the erythema multiforme type, due to acetylsalicylic acid or methenamine, was also considered. In the last few years, the patient had been subject to frequent attacks of rheumatism. The examination of her teeth revealed a severe pyorrhea, and all her teeth were extracted.

The eruption for which she was presented began about three months previously, when she first noticed a group of firm nodules about the right knee. The number of lesions gradually increased, but the eruption did not cause

any discomfort. Examination showed a firm nodular eruption limited to the region of both kneejoints. The individual lesions consisted of a firm, dome shape papule of large or small pea size, of the normal skin color, painless and not itchy. The surrounding skin turned red on manipulation of the lesions.

The urine was negative except for a small trace of albumin; the blood chemistry and Wassermann examinations were negative. Biopsy revealed epidermis, normal; low grade inflammation in cutis; no acid-fast bacilli. A possible diagnosis of granuloma; or fibroma was made.

DISCUSSION

DR. LEVIN: I saw the slides of the tissue taken from one of the tumors several weeks ago. It showed no change in the epidermis, but the corium revealed marked infiltration of fusiform cells and suggested the picture of neurofibroma. I saw the patient for the first time, not having seen the clinical condition before, it suggested the elephantiasis form of neurofibroma. I believe this case to be one of fibroma, clinically and microscopically. There is a tendency at the present time to regard fibromas of the skin as being of neural origin, and most of these fibromas are really neurofibromas.

DR. ROSEN: I had an opportunity to see this patient by daylight at one of the clinical conferences, and the lesions suggested either leprosy or tuberculosis. The microscopic examination, however, ruled out both of these diseases, and strongly suggested a neurofibroma.

LICHEN PLANUS VESICULOSUS. Presented by DR. CANNON. (From the City Hospital.)

G. S., aged 38, single, born in Russia, had been in this country for thirteen years. His past and family history were negative. He was admitted to the hospital on April 29, 1927, complaining of a severely itching generalized eruption of five weeks' duration. The eruption started on the ankles and was followed by eruption on the legs.

Examination showed a polymorphous type of eruption consisting of papules, plaques and bullae. The papules predominated and were most marked on the flexor surfaces; they varied in size from that of a pinhead to that of a pea, were polygonal and linear in shape, flat topped and were violaceous to brown in color. There were numerous bullae on the inner surface of the thighs, and around the neck. The Wassermann reaction was negative.

DISCUSSION

DR. HOWARD FOX: In my opinion, the clinical appearance is that of a generalized lichen planus associated with bullous lesions. On questioning the patient, it was learned that he had previously received injections of some sort, and the idea is suggested that the entire eruption might be a dermatitis medicamentosa.

DR. POLLITZER: I am skeptical in this case in regard to the diagnosis of lichen planus with bullous lesions. The objection, to my mind, is that none of the lesions are typical of lichen planus, and on the upper part of the thigh there is a group of rather large bullous lesions. I suggest the possibility that it may be a beginning pemphigus with a generalized eruption of an erythematous papular character, simulating lichen planus lesions.

DR. BECHET: The man has some shiny papules on the shoulders, particularly noticeable by reflected light, suggestive of lichen planus. There is con-

siderable pigmentation, and it seems to me to be the most noticeable on the sites of former lesions. The eruption seems too sharply outlined to be anything else than lichen planus. The lesions on the thigh might well be due to some external applications, perhaps chrysarobin. I think it is a lichen planus of the bullous type, with a secondary dermatitis.

DR. HIGHMAN: It was one of the most interesting cases shown tonight, and the remarks of the various speakers show how unusual it is. I would like to know what examinations have been made. (Answer: A biopsy has been taken but not reported). The majority of the papular lesions resemble lichen planus, but the bullous lesions are not of the type seen in the so-called bullous lichen planus. The polymorphous eruption suggests the possibility of pemphigus.

A CASE FOR DIAGNOSIS (MYCOSIS FUNGOIDES?). Presented by DR. MCCAFFERTY. (From the Vanderbilt Clinic.)

F. C., a shoemaker, aged 51, born in Italy, presented a generalized pruritis eruption of five years' duration. Over the abdomen and lower lumbar regions, especially, there were large patches of serpiginous and circinate outline, with a pigmented center and an active border consisting of papular, erythematous and vesicular lesions. Scattered over the rest of the body were small groups of identical lesions, also pigmentations from former attacks. The Wassermann examination was negative, as was also the examination for fungus. The blood count was normal. There was no provocation following the internal administration of potassium iodide.

DR. HOPKINS: The histologic examination is apt to be futile, for in a widespread case of this sort you get a specimen from one lesion, and it may not show a picture of what is going on. The specimen examined showed connective tissue and a little exudate; however, in the papular layer there was an exudate, edema, and the infiltration to a great extent continued into the epidermis. That did not look like Duhring's disease. I do not think that one can make a diagnosis from the clinical symptoms. Clinically, the condition looks like Duhring's disease.

DR. WISE: In my opinion, dermatitis herpetiformis can be excluded from diagnostic consideration in this case, and I would suggest the diagnosis of mycosis fungoides following generalized psoriasis. The lesions on the abdomen are in part infiltrated and nodular, with areas of clear skin between the lesions, suggestive of mycosis fungoides. It would be well to obtain another biopsy from the infiltrated abdominal lesion.

DR. FRASER: It is frequently impossible to make a diagnosis on the histologic picture in early premycosis, and I agree with Dr. Wise's suggestion that another section should be taken from the infiltrated lesion on the abdomen, which might possibly give a more satisfactory result. This is a case that would suggest premycosis to my mind, but I do not think any absolute diagnosis can be made without additional data.

DR. LEVIN: My first impression as I approached the patient was that the condition was premycosis fungoides. However, on closer examination, I made the diagnosis of psoriasis because the primary lesion was a small papule covered by silvery white scales. The scalp is covered with a thick layer of dry scales, suggestive of the condition of the scalp found in psoriasis. The papules on the skin tend to run together and form linear and large gyrate patches as well as continuous patches.

DR. POLLITZER: It is often a little difficult to make a diagnosis in such a case. I considered psoriasis but rejected it, mainly on the ground of absence of lesions in the typical and characteristic psoriatic regions; I do not think one sees such extensive psoriasis without lesions most marked in the common psoriatic locations. Also, it itches severely, while psoriasis rarely itches at all. My impression is that the condition is mycosis fungoides. I heard that in the histologic examination an intra-epidermal vesicle was found. Is that correct? Of course, the presence of intra-epidermal vesicles is almost pathognomonic for mycosis fungoides. The presence of the pruritus, the shape of many lesions, the infiltrated plaques on the abdomen and the presence of an inflammatory process with intra-epidermal vesicles, pretty well suffices for the diagnosis of mycosis fungoides, and that would be my tentative diagnosis subject to further investigation.

DR. HOWARD FOX: I am inclined to agree with Dr. Pollitzer, but take issue over one of his statements, namely, that psoriasis does not itch. There can not be any question but that psoriasis may cause itching which at times is severe. In many cases, however, itching is entirely absent or is mild.

DR. FRASER: Did I understand Dr. Pollitzer to say that the presence of intra-epidermal vesicles is pathognomonic?

DR. POLLITZER: According to Darier, the presence of intra-epidermal vesicles or cysts filled with lymphoid cells is specific for mycosis fungoides.

DR. FRASER: Are not intra-epidermal vesicles found in other conditions? Cell nests of lymphocytes in the epidermis, especially when the cells show anaplastic features, are characteristic of mycosis fungoides, but I do not consider a plain epidermal vesicle pathognomonic or even characteristic.

PEMPHIGUS VULGARIS. Presented by DR. CANNON. (From the City Hospital.)

Miss I. K., aged 56, born in Russia, had been in this country for thirty years. She was admitted to the hospital in 1924, complaining of a generalized bullous eruption of eight months' duration. The bullae had begun in the mouth and had gradually spread to the other parts of the body. Treatment consisted of injections of iron intravenously and coaguline intramuscularly, blood transfusions, arsphenamine and alkalis. The patient had been out of the hospital for two years, during which time her mouth had never been free from lesions, and there were usually from one to ten bullous lesions on the body.

SERPIGINOUS GUMMAS OF THE LEG. Presented by DR. CANNON. (From the City Hospital.)

R. H., a colored man, born in Virginia, gave a history of an initial lesion nine years previously, for which he received only local treatment. The condition presented began as a painless small red lesion on the right leg just below the knee, and gradually extended. Examination revealed a serpiginous, ulcerated lesion extending from the knee to the lower third of the leg, measuring 9 by 5½ inches (22.86 by 13.9 cm.) in diameter. The margins of the ulcer were irregular, raised and crusted, while the center was composed for the most part of scar tissue with an occasional dime-sized ulceration. The Wassermann reaction was four plus.

NEVUS PILOSUS. Presented by DR. WEISS. (From the German Polyclinic.)

J. W., aged 15, a printer, presented lesions extending from the neck down to the lower part of the shoulders, also numerous pigmented moles, pea-

sized and hairy, on his face and scattered over the body. The patient had been operated on several times and skin had been removed from the back and sides, in order to replace the nevus of the neck, which had resulted in deep scars.

LUPUS VERRUCOSUS EX ULCERANS. Presented by DR. CANNON. (From the Vanderbilt Clinic.)

S. B., an Armenian girl, aged 11, developed lesions on the finger, neck and leg about five years previously. Four years prior to presentation, the lesions on the finger and neck were operated on; the lesion on the leg remained untreated. On the left leg, in the popliteal region, was a half-dollar sized lesion, ulcerated and crusted; on removal of the crust, it presented a verrucous appearance. There was a scrofuloderma scar on the left side of the neck.

RECURRENT SUMMER ERUPTION. Presented by DR. CANNON. (From the Vanderbilt Clinic.)

L. B., a white woman, aged 40, born in the United States, had been subject to a recurrent eruption of the skin since childhood, and said that the condition would appear after exposure to the sun. On presentation in the clinic on March 18, the patient had a rather sharply defined papulo-erythematosus eruption on the face, neck and extensor surface of the forearms.

The Wassermann and the hematoporphyrin tests were negative.

ERYTHEMA INDURATUM AND PAPULONECROTIC TUBERCULID. Presented by DR. MCCAFFERTY. (From the Vanderbilt Clinic.)

R. F. a white woman, aged 17, born in the United States, presented herself for treatment for a recurrent eruption of two years' duration. Her mother had died of pulmonary tuberculosis, but the patient herself had always been well. There were large, bluish-red deep-seated nodular lesions on both legs; some of the lesions were ulcerated. On the knees, dorsa of the hands and fingers were numerous, discrete, pea-sized nodules with central necrosis. On the left thumb was an infiltration the size of a twenty-five cent piece. There were two papular lesions on the left side of the face. There was marked acrocyanosis and walnut-sized glands on the left side of the neck. No evidence of pulmonary tuberculosis was found.

GEORGE C. ANDREWS, M.D., Secretary.

PHILADELPHIA DERMATOLOGICAL SOCIETY

Regular Meeting, May 6, 1927

ROSE HIRSCHLER, M.D., *Presiding*

ELEPHANTIASIS TELANGIECTOIDES. Presented by DR. CHAMBERS for DR. STOKES.

Mrs. H., aged 59, had been ill one year. The onset of her condition was gradual, beginning as mild, transient, localized swellings at the site of the present lesion. These relatively painless swellings always occurred during the night and disappeared in the morning. Objective evidence did not remain following the first few attacks, but during the past six months the patient had observed a persistent tumor which gradually enlarged following each attack.

The transient swellings occur at the present time and often involve the right eyelid. Mild localized tingling sensations accompany the attacks. Blood Wassermann reactions were negative, the blood sugar was normal, and the urine was negative. Blood studies failed to reveal the presence of the *Filaria nocturna*. Biopsy was performed, and will be reported on by Dr. Weidman.

DISCUSSION

DR. STOKES: There is a picture of this condition in the third edition of Ormsby's book.

DR. WEIDMAN: There is not enough fibrosis for elephantiasis. There was considerable fatty tissue. The only abnormal conditions are very small lakes, with indefinite edges, which contain a pink substance, probably fibrin or a compact type of serum albumin. The appearance is compatible with that of an edema with large loculi, also with lymphangioma. The sections make the diagnosis of lymphangioma circumscriptum possible. The blood vessels show an accompanying ectasia. Probably the pathologic basis of the two is somewhat similar.

DERMATITIS HERPETIFORMIS IN A CHILD OF SIX YEARS. Presented by DR. SIDLICK.

K. S., a white boy, aged 6, had had an eruption for four years. Only a few lesions have ever been observed on the face. It was a generalized papular eruption with a tendency to grouping. As it involutes, it leaves pigmentation. Excoriations give evidence of the marked itching.

DISCUSSION

DR. STRAUSS: I think that the diagnosis as presented is possible, but that a pigmented papular urticaria should also be considered.

DR. BROWN: I agree with the presenter's diagnosis, and suggest that in treatment, circumcision should be performed because of the distinct phimosis.

DR. WRIGHT: I agree with the presenter, and think that the diffuse appearance of the eruption is due to the pigment. There is a tendency toward grouping of lesions. This dermatitis is not as uncommon in children as has been believed, for I have seen two in the past year, one in a child of 5 and one in a child of 3. They both responded well to treatment with arsenic.

DR. STOKES: There should be a great deal of reserve in making the diagnosis of dermatitis herpetiformis, for the group of scrofulas, prurigos, lichen urticatus and other eruptions are sometimes diagnosed as dermatitis herpetiformis. I do not see a classic vesicle, but I do see a number of chronic papular lesions. The diagnosis of dermatitis herpetiformis must be questioned if the lesions clear up readily.

DR. SIDLICK: Is urticaria commonly found in the scalp?

DR. STOKES: I have never seen dermatitis herpetiformis involve the scalp, though I have seen it on the back of the neck. Some of the lesions of the lichen urticatus type are found on the scalp.

A CASE FOR DIAGNOSIS. Presented by DR. STOKES.

M. S., a white man, aged 70, had had a hemiplegia twelve years prior to presentation; otherwise he was in good health. An eruption appeared eighteen months previously, in the form of plaques, the itching of which was severe, and he has not received relief from any kind of therapy. The original lesions are

still present, and always itch. Over the left tibia there was one distinctly nodular lesion, broken down. Histologic studies were not yet reported. The blood picture was normal. The condition was not preceded by dermatitis or eczema. Three courses of roentgen-ray treatment to each lesion have not relieved him.

DISCUSSION

DR. BROWN: I suggest the diagnosis of mycosis fungoides, with many premycotic lesions.

DR. STRAUSS: I agree with the diagnosis, but believe that the dosage of roentgen rays has been too low, and therefore there has been no relief.

DR. SIDLICK: According to MacKee, roentgen-ray treatment is effective only in the early stages, and not in the chronic stages.

DR. KLAUDER: I suggest malarial inoculations, based on three reported cases in which the patients were cured by concurrent infections — pneumonia and erysipelas. The age of the patient would preclude such treatment.

DR. WEIDMAN: I agree with the diagnosis of mycosis fungoides, but Hodgkin's disease must be kept in mind. One of the striking things about the sections of mycosis fungoides is the presence of prickle cells, an expression of the intercellular edema present; clinically, it appears as a jelly-like point in the plaque.

DR. STOKES: I am also inclined to favor a diagnosis of premycotic mycosis fungoides. It is possible that this is an extremely itchy parapsoriasis, but against that diagnosis is the presence of annular, fleshy lesions. As to roentgen-ray treatment, I agree that the dosage was inadequate, but I have seen some cases relieved by a few small doses. Roentgen-ray treatment gives temporary relief, but at the same time I have seen two or three patients who rapidly developed tumors from its use. I prefer neoarsphenamine and nonspecific protein therapy as adjuncts. The lesions on this patient have not shown any satisfactory response and treatment of his skin with stronger doses of the roentgen ray would be disastrous.

CULTURE OF PITYROSPORON OVALE. Presented by DR. WEIDMAN.

Dr. Weidman presented a test tube containing a culture of *Pityrosporon ovale*, which according to Sabouraud is the cause of dandruff. It was sent to him by Dr. Ota of Japan, who has two strains. It is probably the first successful attempt at culture of this organism.

A CASE FOR DIAGNOSIS. Presented by DR. CORSON.

O. S., a farmer, white, aged 43, who was shown at the January meeting, for a diagnosis of his condition was again presented. On Jan. 1, 1926, he first noticed a small red papule, split-pea sized, on the lower lip; a heavy crust formed, and the eruption spread over the lower and upper lips. The gums bled easily, and taste was lost. In May, 1926, pustules appeared on the back of the neck. They itched severely. Other places became infiltrated, after beginning as pustules. Between the toes there was an *Epidermophyton* infection, which did not have any relation to the outbreak. He was given heavy doses of iodides in another hospital. Roentgen-ray treatment in that hospital did not relieve him. There was a history that he had cared for a horse with discharging ulcers, and some thought it might be a chronic farcy. The eruption when first seen was suggestive of pemphigus. Another diagnosis, on account of the fungating appearance, was granuloma fungoides. Laboratory examina-

tions were negative. The Wassermann reaction was negative. Fungi were found only between the toes. Biopsy showed "chronic inflammatory tissue." Cultures showed only common organisms. Roentgenograms, blood and urine were normal. He was given ointments, metaphen intravenously, and roentgen-ray treatments, the latter having been more efficacious than any other therapy. The condition is still undiagnosed.

DISCUSSION

DR. WRIGHT: One should be suspicious of drugs when an eruption cannot be fitted into any dermatologic entity.

DR. STRAUSS: Drugs can be ruled out, for the patient has been in the hospital for six months.

DR. KLAUDER: Some of the lesions are definitely pustular, and suggest a low grade pyogenic infection. Perhaps the patient has lowered resistance to staphylococci.

DR. WEIDMAN: As long as there is iodine in the urine, one should be cautious, for drugs may be eliminated slowly over a long period. The patient should be given chlorides according to Wile's methods; if this does not help, the diagnosis of mixed infection should be considered. Yeasts should not be forgotten in considering mixed infections.

DR. STOKES: Any attempt to explain the condition should take into account the fact that there is an involvement of the mucous membrane. The right tonsillar fossa, palate and uvula show a similar condition. In addition, the patient has what looks like an acetanilid cyanosis. Tuberculosis, yeast infection and mycotic lesions are possible diagnoses for any one of these may attack both the skin and the mucous membranes.

A CASE FOR DIAGNOSIS. By DR. KLAUDER.

V. K., aged 9, for three years had had recurring superficial ulcerations on the anterior surface of the legs, apparently following trauma. There were some stigmas of congenital syphilis, but Wassermann reactions were negative.

DISCUSSION

DR. STOKES: I am inclined to believe that this is a dystrophia bullosa congenita of Nobl. The mother says that the boy develops a bruise on slight traumatization, and that is characteristic of the Nobl dystrophy. I do not see any lesions suggestive of syphilis. The patient is improving under treatment with iodides and the quartz lamp.

A CASE FOR DIAGNOSIS. Presented by DR. CHAMBERS.

Mrs. J., aged 37, had been ill five months. Following the onset of the condition, the patient had made hourly local applications of tincture of iodine to lesions on the lower extremities, which had been diagnosed ringworm by a physician. A severe dermatitis venenata followed these applications, accompanied by marked edema and some superficial necrosis of tissue. Shortly after this acute phase, the present eruption appeared, first on the upper and lower parts of the legs, above the region associated with the dermatitis venenata. Small macules varying in size from that of a pinpoint to that of a pinhead and maculopapules appeared, discrete and grouped. New lesions appeared, progressing slowly up the leg and thigh. At this time the patient presented herself at the University clinic. On examination, the residual effects of a previous dermatitis was evident on the lower part of the legs. At present, lesions are

scattered over the upper third of the legs and over the entire thighs, having a predilection for the inner surfaces. Definite hemorrhagic puncta were visible in the lesion. Pigmentary deposition was also prominent. A biopsy was taken at this time. The blood Wassermann reaction was repeatedly negative. She was seen on two succeeding visits, and the pigmentation and hemorrhagic puncta were more marked. Sections from biopsy showed necrosis of the walls of blood vessel. Dr. Weidman classified the condition as purpura.

LINEAR NEVUS UNIS LATERIS. Presented by DR. HART-DRANT.

I. P. L., a white woman, aged 22, had a linear verrucous lesion on the wrist for six months. It had not changed except to extend up the arm on to the chest.

DISCUSSION

DR. SIDLICK: I should diagnose the condition lichen planus. The primary lesion is apparently umbilicated, flat topped and striated.

DR. STOKES: I think that the condition is linear lichen planus, with a possibility of ichthyosis hystrix.

DR. WRIGHT: I suggest that roentgen-ray treatment be tried—a linear nevus will be unaffected, while lichen planus should respond.

CONTRACTURE OF BICEPS, OCCURRING IN SECONDARY SYPHILIS. Presented by DR. CHAMBERS.

W. C., a colored man, aged 22, in April, 1926, had severe cold, following which he noticed some swelling of the left wrist. Pain appeared in a few days, with flexion of the fingers. The right wrist became similarly involved a week later. Two weeks later the left knee became stiff, swollen and painful, following which the left ankle and the right knee became somewhat stiff. There was also stiffness of the jaws, such as to limit the opening of the mouth. Three weeks after the onset, he developed an eruption involving the chest, neck and upper extremities, and extending to the thighs. It consisted of flat, small sized lesions which scaled when rubbed. There was considerable itching. The lesions were darker than the uninvolved skin. Urinalysis and examination of the blood were negative. Blood Wassermann reactions were strongly positive. Roentgen-ray examinations showed diminution in the width of the spaces of the joints of both wrists, particularly of the left, the bones of the latter showing irregular decalcification. Much the same condition existed in the joint of the right elbow and to a lesser degree in the joint of the left elbow. The nature of the arthritis could not be determined from the roentgenograms. There was limitation of motion in the elbows, especially of extension. This patient came to the University clinic a year later, and after receiving four intravenous injections of arsphenamine, the limitation of motion had diminished 10 per cent. The patient did not have pain. Roentgenograms were taken, and were substantially the same as previously reported.

DISCUSSION

DR. KLAUDER: This is one of the rarest conditions presented before the society in several years. I have seen only one other patient, and he was a negro. The biceps was twice the size of the normal biceps.

DR. STOKES: I was not sure about the diagnosis, because I did not see the patient at the height of the disease. The condition is not necessarily accompanied by a myositis. It is a contracture which seems to be a functional condition in the muscle. The patient had a harder and firmer process in the

biceps a week previously. He has had at least a syphilitic myositis, from which he is recovering. These processes frequently accompany a syphilitic arthritis.

Dr. Klauder: There is an interesting description of the condition in DaCosta's "Surgery."

Carroll S. Wright, M.D., Secretary.

CHICAGO DERMATOLOGICAL ASSOCIATION

Regular Meeting, May 25, 1927

Francis Eugene Senear, M.D., *Presiding*

Dermatitis (Generalized). Presented by Dr. Ormsby.

A man, aged 39, had a disorder of nine and one-half months' duration. The eruption began between the toes and in two weeks spread over the foot and shortly afterward over the entire body; the early lesions were "pimples" which contained fluid.

When the patient was first seen five months previously, there were numerous round or oval scaling and crusting plaques of generalized and practically symmetrical distribution. The patient complained of marked itching. During the subsequent several months, the disorder progressed and regressed from time to time. A picture of infectious dermatitis was presented early in the disease. This developed into general lichenification which in turn exfoliated. No part of the cutaneous surface was exempt. At the time of presentation there was much edema about the face and eyes, with redness and some scaling. The trunk and extremities presented marked exfoliation. On some portions of the surface, particularly over the trunk, the skin was much thickened. The only abnormality found in an extensive and thorough general examination was an eosinophilia, amounting to 33 per cent.

Various methods of treatment, including nonspecific proteins, were of little avail.

DISCUSSION

Dr. Lieberthal: When this man first came to my office he had plaques of various sizes, some as large as the palm of a child's hand, which were scattered all over the body. They were slightly elevated and most of them were oozing. He was placed in the hospital and put on a bland diet; bland lotions and ointments were applied. Within a few weeks, the condition cleared up, and the patient left the hospital. Shortly afterward the whole skin became diffusely inflamed. At that time the patient expressed a desire to see Dr. Ormsby, and I encouraged that idea. There was nothing in his blood picture, nor was any other abnormal condition found at examination. A diagnosis of eczema en plaques was made.

Dr. Ormsby: This is a dermatitis that has run an unusual course. Some of the patches were dry and some resembled eczematoid dermatitis originally. These gradually cleared, but they left a generalized lichenification. It would remain in this stage for a time, when acute symptoms would recur followed by the lichenoid stage again. Every known examination was made, but only marked eosinophilia was found and the patient has not responded to treatment. Ordinary bland ointment, such as sulphonated bitumen, N. F., in the strength of 2 per cent was of some assistance; nonspecific protein treatment did not have any effect.

HERPES ZOSTER ASSOCIATED WITH A GENERALIZED VARICELLA-LIKE ERUPTION. Presented by DR. ORMSBY.

A man, aged 37, presented a generalized varicella-like eruption of twenty-four hours' duration. He also had a typical herpes zoster of four days' duration occupying the left half of the scalp. The zoster eruption was severe and painful and was accompanied by much swelling. The vesicular lesions, which were generally distributed, were typical of varicella but were not numerous.

DISCUSSION

DR. HARRY R. FOERSTER: The interesting thing in this case was the point brought out by Dr. Ormsby regarding the definite time interval between the appearance of the varicella-like eruption and the zoster in the cases he has observed.

DR. MITCHELL: I saw a physician last year whose two children had varicella, and exactly sixteen days later he developed severe herpes zoster.

DR. ORMSBY: This patient was shown on account of the general interest in such cases. I saw one of the early cases of this type and it was reported before the American Dermatological Association in 1910, (J. Cutan. Dis. **29**:308, 1911). That case was similar to the present one, but the patient exhibited more lesions and the zoster was more severe. In that instance a generalized varicella-like eruption developed on the fourth day of the zoster. The city health officer saw the patient and decided that variola was not to be considered. The connection between varicella and herpes zoster seems proved in certain instances, and cases such as this confirm the view that the two diseases may have a common etiology.

DR. ZEISLER: I saw a patient some years ago with leukemia and fresh herpes zoster. Subsequently she developed a varicella-like eruption over the entire body.

NOTE.—Ten days after this patient was presented, or fourteen days after the beginning of the zoster, two of his children developed varicella.

LUPUS VULGARIS, TUBERCULOSIS VERRUCOSA CUTIS. Presented by DR. SENEAR and DR. WIEN.

A girl, aged 17, presented numerous small, soft, reddish-brown nodules about the extensor surface of the right elbow which she said had been present for six years. On pressure with a diascope an apple jelly color was revealed. On the right palm near the thenar eminence there was a circumscribed brownish-red patch covered with numerous vegetations, which the patient said had also been present for six years.

DISCUSSION

DR. OLIVER: I thought the lesion on the palm was a verrucous tuberculosis and that on the elbow probably lupus vulgaris.

DR. SENEAR: The case was presented with this diagnosis because we thought the relation was interesting.

BLASTOMYCOSIS. Presented by DR. WAUGH.

A Greek fruit pedler, aged 40, said that the first lesion appeared about a year and a half before presentation as a pimple on the left cheek near the nasolabial fold. This enlarged, became markedly elevated and of papillomatous type, healing in the central portion with scar formation. The lesion now

present involved the left side of the nose, part of the upper lip and part of the left cheek and was about 2 inches (5.08 cm.) in diameter. A similar but small lesion was present on the right cheek.

Blastomyces had been demonstrated microscopically.

DISCUSSION

DR. FINK: I saw this patient four or five months ago at the Dispensary and was able to demonstrate the blastomyces. We then lost track of him, and the lesion has spread considerably since that time.

LICHEN SIMPLEX. Presented by DR. ZEISLER.

A man, aged 22, was first seen one week previously with lichen simplex of both knees. He received one roentgen-ray treatment and arsenic by mouth. When he returned, one week later, he had a fine papular eruption on the trunk and extremities, due either to the ingestion of a laxative containing phenolphthalein or to the arsenic.

DISCUSSION

DR. MITCHELL: I recently saw a woman with pernicious anemia who was receiving liver and solution of potassium arsenite (Fowler's solution), and she developed an eruption exactly like this. It was thought to be due to the solution, and it was stopped for two weeks, with complete healing, but after she resumed taking the solution of potassium arsenite, the eruption recurred. This happened three times immediately following the ingestion of the solution of potassium arsenite and no other medication.

DR. SENEAR: I have had two patients in the last month who have developed an eruption a little more papular than this but almost identical in appearance following the administration of a solution of potassium arsenite. This was not true, however, when any other medication was administered.

PELLAGRA IN A CHILD 2 YEARS OF AGE. Presented by DR. OLIVER and DR. FINNERUD.

A Mexican boy, aged 2, presented pigmented and slightly erythematous areas over both hands, both elbows, knees, the plantar surfaces of the feet, the diaper region, the lower part of the abdomen, and on the face and neck, which were symmetrical on the extremities. The lesions had scalloped, scaling edges and were accompanied with some pruritus, which was worse at night. The condition began on the knees nine months before presentation and spread to the abdomen. The father said that the skin would become red, blisters would form and then healing would occur leaving some pigmentation. The child was born in Chicago, and the birth was normal. He has been bald for one year. Blepharitis had been present one month. The father had been a patient at a tuberculosis sanatorium. The Pirquet and Wassermann reactions were negative. The blood examination showed: hemoglobin 80 per cent, red blood count 4,300,000, white blood count 10,600, polymorphonuclears 53 per cent and lymphocytes 42 per cent. The bowels moved twice daily. Dentition was normal, but the child neither talked nor walked. The mouth was inflamed.

DISCUSSION

DR. ORMSBY: I have not seen pellagra in an infant before. This, however, appears to be an example of that disease. Erythredema is the only other disease even slightly simulated. The absence of lesions on the palms and

soles and the absence of marked subjective symptoms eliminate that disorder from consideration. The age of the patient makes the case interesting.

DR. ZEISLER: I would like to know whether the child was breast fed or whether there is any possibility of "moonshine" in the case.

DR. FINNERUD: I learned that the child was brought up on milk, and he had never received any vegetables, meat, or fruit juices at the time of first examination by us.

DR. HARRY R. FOERSTER: I thought of acrodynia, not because the case resembled that disorder but because the first cases of acrodynia that appeared in this country were mistakenly diagnosed as pellagra. As Dr. Ormsby said, the parts involved in acrodynia are not involved in this case. The palms and soles are free from symptoms, there is no evidence of edema and no trophic disturbance such as loss of teeth or hair. The eye symptoms in this case are probably entirely due to a secondary infection not related to the disorder, and the sharp margination of the lesions, especially on the neck, all fit in with the picture of pellagra.

DR. FINNERUD: Dr. Oliver told me a short time ago that he thought we should present the case as pellagra with a question mark and I suggested two question marks. At that time, however, I read the article on pellagra in children in Abt's "System of Pediatrics" and found an excellent article by Schneider which conforms to this case in almost every detail. He stated that the gastro-intestinal symptoms are usually absent in children and infants, as they are in this case.

DR. OLIVER: The age of the patient is not against the diagnosis, for many cases have been reported in children as young as this one. Regarding season, these cases are seen in the South at all seasons, and I cannot see that this is against the diagnosis of pellagra. I think another condition that should be considered is epidermolysis bullosa, although bullae have not developed thus far.

TUBERCULOSIS VERRUCOSA CUTIS (?) IN A CHILD. Presented by DR. OLIVER and DR. FINNERUD.

A girl, aged 3, had a lesion of the extensor surface of the left forearm which was devoid of subjective symptoms of eleven months' duration. It began as a smooth, pea-sized, red spot, which became rough and gradually grew to its present size. Physical examination did not reveal any noteworthy observations. The Pirquet test was negative. A biopsy had not as yet been performed.

Examination disclosed a bright red, slightly verrucous, rather soft nodule, about the size and shape of a small almond. Practically all color disappeared under diascopic pressure.

DISCUSSION

DR. ZEISLER: I would suggest the diagnosis of keloid. It seemed to me there was more infiltration than we find in lupus.

DR. ORMSBY: Keloid or a fibroma is strongly suggested in this case.

DR. SENEAR: My idea was similar to that of Dr. Zeisler and Dr. Ormsby. I think the condition was probably a keloid, with some vegetative eruption, either secondary or primary, as the cause.

DR. FINNERUD: We will try to secure a biopsy and add the observations to the discussion as a note.

NOTE.—Histologic sections show only slight acanthosis and marked connective tissue hypertrophy in the upper half of the corium.

NEVUS (VERRUCOUS). Presented by DR. STILLIANS.

A city fireman, aged 56, said that he first noticed a warty patch on the right side of his nose a few months previous to presentation. There was no sensory disturbance.

Inspection revealed a grayish verrucous patch 1.3 by 1 cm. about the middle of the right side of the nose; the surface was rather hard and not velvety. At the edge of this patch several flat-topped brownish papules were seen, and a line of these extended for 0.5 cm. toward the inner canthus.

DISCUSSION

DR. LIEBERTHAL: I thought this case was a verruca senilis or seborrheic wart.

DR. STILLIANS: I was interested in the case because of the papules around the main lesion. It might be a group of sebaceous warts which are often harder on the body, but it is rather hard for an ordinary sebaceous wart. I knew the consensus of opinion would be against a verrucous nevus. The lesions were so distinct yesterday that they looked like ordinary warts, and there was a line up toward the inner canthus. Since then that lesion has disappeared.

ERYTHEMA INDURATUM. Presented by DR. SENEAR and DR. WIEN.

A negress, aged 23, presented ulcers of six months' duration on both legs. The lesions began as hard nodules under the skin that gradually enlarged and broke down. They had discharged a serous fluid for the past two weeks. New lesions had appeared on the legs during the last six months, starting as pea-sized subcutaneous nodules and gradually enlarging to their present size. The patient also presented multiple disseminated subcutaneous nodules, varying in size from that of a pea to that of a bean and painless, on both forearms, buttocks and the lower part of the trunk. She had had a slight cough for the past three weeks, and night sweats had also been present during that time. She had lost 10 pounds (4.5 Kg.) in the last six months. She had not had any previous illnesses, and the family history was negative, except that her brother's wife died of pulmonary tuberculosis. A Pirquet test was strongly positive. Examination of the chest did not reveal any evidence of active tuberculosis. A biopsy had been performed but had not yet been completed.

DISCUSSION

DR. FINNERUD: I think this case is much like that which Dr. Senear showed a year or so ago. I think two cases have been shown in which the patients had a combination of sarcoid and erythema induratum, and I believe this case will prove to be of the same type.

DR. ORMSBY: I hardly see why we should consider sarcoid. The cases of sarcoid-like erythema induratum have been taken out of the sarcoid group. I think it well to limit the sarcoid to two types, those which were described originally by Boeck and the Darier-Roussy type, leaving out the nodular type resembling erythema induratum and the Speigler-Fendt varieties. If this classification is followed, the present case should be classed as erythema induratum.

DR. SENEAR: As Dr. Finnerud said, not long ago we presented a Jewess who had lesions similar to those of this patient. The lesions on the buttock had existed for seven years and had never broken down, but shortly before

the patient was shown she developed lesions on the legs that were typical of erythema induratum. That case belongs in the same group as this one.

URTICARIA (EXERTION). Presented by DR. MITCHELL.

A man, aged 19, had an exertion urticaria of two years' duration which developed after playing football. He was first seen in March, 1927, when he gave a history of an eruption which invariably followed violent exertion of any kind. After his history was taken, the patient was sent out to run up and down stairs several times, after which he returned with a marked generalized urticaria which persisted for an hour and a half and disappeared after a dose of epinephrine. The patient was placed on calcium which was administered orally, and the disorder had entirely disappeared.

DISCUSSION

DR. ORMSBY: I think this is one of the cases of physical allergy. Duke's explanation of this was interesting, and the therapeutic result is unusual.

DR. HARRY R. FOERSTER: I have seen a similar case following exertion. I should like to comment on Dr. Mitchell's apologies for his therapeutic result. It seems that when one of us accomplishes something with calcium lactate, he makes an excuse for it. I feel that calcium lactate has therapeutic value in urticaria and similar disorders.

DR. SENEAR: Following the publication of an article recommending the administration of calcium lactate in massive doses in the morning and evening, showing that it is better assimilated in that way, we have been following that plan at the Clinic. I think we are getting definite results with this therapy, and better results than when the calcium is given at meal time. They give 5 Gm. twice a day.

DR. CORBLEET: We give 5 Gm. of the calcium lactate in water before breakfast and after the evening meal. I have found that this whole amount will dissolve in a glass of water if it is allowed to stand.

DR. MITCHELL: This is particularly interesting as Greenbaum showed recently that in many cases of urticaria the calcium was not low but in some of them abnormally high, and also that the coagulation of the blood was more rapid than normal. I have a patient under observation who has giant urticaria. In the two worst attacks I have seen, one followed the witnessing of the murder of a policeman which happened in front of her house, and the other followed a consultation with a woman physician who told her that her child had syphilis. Neither the mother nor the child has syphilis. Calcium lactate is freely soluble in hot water. There is no difficulty about dissolving two tablespoonfuls in half a glass of hot water, and the process of dissolving will cool the water to the point at which it can be taken without discomfort.

Book Reviews

OCCUPATIONAL DERMATOSES. By DRS. KARL ULLMAN, J. H. RILLE and MORIZ OPPENHEIM. Pp. 1236, with 177 text figures and 49 colored plates. Leipzig: Leopold Voss.

With the publication of this work a gap in the medical library not only of the dermatologist and the physician engaged in industrial medicine, but also of the student and general practitioner, has finally been filled. This work is particularly noteworthy on account of its completeness; every type of injury to the skin no matter how rare or how trivial has received detailed attention from the numerous authors who have contributed to this much neglected subject.

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